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TABLE OF CONTENTS

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PAPERS AND DISCUSSIONS OF THE SECTION OF TUBERCULOSIS.

AT ITS MEETING AT THE HARVARD MEDICAL SCHOOL, BOSTON, JUNE 13, 1922.

TUBERCULOSIS IN CHILDREN FROM THE STANDPOINT OF THE PEDIATRIST.

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

IT would be impossible for me, of course, to cover the whole subject of tuberculosis in childhood in the 15 or 20 minutes allotted to me. I feel quite confident, moreover, that no one wishes me to do this, even if I were competent to do it. What is wanted of me, I think, is a summary of some of my own impressions and experiences with this disease in childhood during my career as a pediatrist.

ETIOLOGY.

Tuberculosis in childhood may be caused by either the human or the bovine type of organism. It seems to me that the relative frequency of infection with these two types is of no practical importance. Both may cause the disease. We must, therefore, guard against both. Infection with the bovine bacillus may be prevented by the elimination of tuberculous cows with the aid of the tuberculin test and by the general pasteurization or boiling of milk. Infection with the human type of organism can be prevented by the separation of infants and young children from adults with open tuberculosis and diminished by instruction in and enforcement of the proper precautions to be taken to prevent contagion.

MODE OF INFECTION.

The relative frequency of infection through the respiratory and digestive tracts seems to me likewise to be of little practical importance. Infection may take place through either path. Hence, we must guard both. It is also of no practical importance, if infection takes place through the respiratory tract, whether there is a primary focus in the lung, as Gohn teaches, or the bacilli pass directly through the lung to the tracheobronchial glands, as was until recently believed. The result is the same either way. Furthermore, what difference does it make, practically, when tubercle bacilli get into the tracheobronchial lymph nodes, whether they come directly through the bronchi and lungs or indirectly through the stomach and intestines?

TUBERCULIN TEST.

Although years ago I used the subcutaneous and eye tests, the only one with which I am now familiar is the skin, or Pirquet, test, and the conclusions which I shall draw are based on this test alone. This test is of great value in infants. A positive test in a sick baby, showing

no other evident cause for its illness, is very strong evidence in favor of the trouble being tuberculosis. A negative test, in my experience, almost positively excludes tuberculosis as the cause of the illness, unless the baby is manifestly overwhelmed by the infection. I am aware that in certain instances a positive test may be obtained after repeated trials. I am somewhat doubtful as to the value of a positive test under these circumstances, although my experience has hardly been sufficient, perhaps, to justify a definite opinion.

The test is of less value in children, and the older the child, the less is the value of the test because of the steadily increasing frequency of infection with age. A negative test is of great importance in childhood, however, and practically rules out tuberculosis unless the child is evidently overwhelmed by some infection. Because of the severity of the infection, the test is usually negative in acute miliary tuberculosis and in tuberculous meningitis, which is, of course, a variety of acute miliary tuberculosis. I have also seen it absent several times in tuberculous peritonitis, even when it was not of the miliary, ascitic type. A positive test is of much less value than a negative in childhood, because, while it shows that the child has been infected with tuberculosis, it does not show that the illness which it has is tuberculous. It may as well be due to some old or latent infection, or to the infection of some hidden gland, as to the illness from which the child is suffering. It is of some help, however, if the lesions which the child has may well be tuberculous and there is no other evident cause for the illness. Great care must be taken about calling pulmonary lesions tuberculous, however, simply because the tuberculin test is positive. I have seen many mistakes of this sort made, because physicians did not realize that physical signs merely indicate certain changes in the lung tissue and show nothing as to the cause of these changes.

TUBERCULIDS.

The presence of tuberculids, which are small, dark red papules, which often have a scaly apex, shows evidence of an active and usually of a generalized infection with tuberculosis. Their presence is of especial value, because they are most often found in just the cases in which the tuberculin test is negative, that is, in cases of acute miliary tuberculosis. They should be looked for, therefore, in all cases when this disease is a possibility. Their presence usually, but not always, indicates a fatal termination.

TUBERCULOUS INFECTION.

It is well known that new-born babies almost never show a positive tuberculin test. The test is almost always negative in young infants, but the proportion of positive reactions increases steadily through infancy and childhood, while all adults give a positive reaction; that is, a steadily increasing proportion of infants and children become infected with tuberculosis. The important thing, therefore, is not so much whether they are or have been infected with tuberculosis, but whether the infection is or is not active. In this connection it has always seemed foolish to me to speak of a pretubercular stage. I have, in fact, never been quite certain what those who use this term mean by it, whether they mean a condition of malnutrition or increased susceptibility from some cause or other before tubercle bacilli enter the body or a period after tubercle bacilli have entered the body, but in which there is no active process giving symptoms. In either case it seems to me that the term is a poor one. A child either has or has not been infected with tuberculosis; therefore, he either is or is not tuberculous. If the infection is latent, he has no symptoms. If it is active, he has symptoms. We should, therefore, it seems to me, think whether a child has or has not been infected with tuberculosis, and, if he has, whether the infection is active or inactive.

The tendency of the majority of physicians is to consider that every child who is delicate or poorly nourished or has a continued fever is tuberculous. My experience is that tuberculosis is seldom the cause, when children are delicate or poorly nourished. A careful study of their parentage and of their diet and mode of life will almost always reveal the cause of the delicacy or malnutrition. In my experience, also, the least probable cause of a continued temperature in infancy and childhood is tuberculosis. Careful investigation will almost always show some error in diet, some disturbance of the digestive tract, some disease of the nasopharynx and accessory sinuses or pyelitis to account for the fever. Furthermore, many apparently well children that have a negative tuberculin test and in whom no evidences of disease can be found, have a temperature somewhat higher than what is ordinarily considered normal in the afternoon, especially if they have been excited or playing hard. In my experience, also, tuberculosis is a rare disease in infancy and childhood, both in private and hospital practice. I seldom see tuberculosis at this age in my office or consultation practice, except tuberculous meningitis and tuberculous peritonitis. In 1921, according to the report of the Children's Hospital, Boston, the diagnosis of tuberculosis in any form was made less than 100 times in something over 10,000 diagnoses in the Medical Out-Patient Department, unless 104 cases of cervical adenitis are all considered to be tuberculous. In the wards the diagnosis of tuberculosis in all forms was made only 36 times out of 822 diagnoses. These figures seem to demonstrate the relative infrequency of active tuberculosis in childhood.

TUBERCULOSIS IN INFANCY.

A tuberculous infection in infancy may be local, never cause any symptoms and never be recognized. Contrary to the general belief of a few years ago, a positive tuberculin test does not by any means condemn a baby to death. It is certain that many babies become infected with tuberculosis that never show any evidences of this infection, except a positive tuberculin test, or, at any rate, do not show any evidences of it until later in childhood or in adult life, when the infection may become active. Nevertheless, the tendency for tuberculosis to become generalized is much greater in infancy than it is later. When it becomes generalized, it may take either one of two forms, the acute miliary or what used to be called chronic diffuse tuberculosis. This term, which seems to me to be a good one, appears to have fallen into disuse during recent years. It describes better than any other term, I think, a condition which is common in infancy, but uncommon in childhood and adult life. In this condition there are tuberculous lesions in many or all of the organs, but the number is very much less than is the case in acute miliary tuberculosis. The baby consequently lives longer and the individual lesions have time to become larger than in acute miliary tuberculosis, although they may not give any more definite physical signs. The duration of chronic diffuse tuberculosis is, therefore, one of months rather than of weeks, as it is in acute miliary tuberculosis. A tuberculous infection in infancy, especially when it is of the chronic diffuse type, may give only the evidences of malnutrition with no localizing physical signs. It is wise, therefore, when a baby, that is reasonably well fed, and does not show any marked evidences of indigestion, does not gain properly, and shows other evidences of malnutrition, to suspect tuberculosis as the cause of its failure to thrive. Tuberculous bronchopneumonia is a very common form of tuberculosis in infancy. There is, as a rule, nothing about the onset to suggest that the trouble in the lung is tuberculous. Whenever the bronchopneumonic process continues localized for a long time in one spot, new spots continue to develop without the clearing up of the old, or the disease is of unusually long duration, tuberculosis should always be suspected. The physical signs do not differ, however, in any way from the physical signs of bronchopneumonia due to other organisms. Tuberculous meningitis is also more common in infancy than in childhood, because of this tendency to generalization at this age. While tuberculosis in infancy which gives definite physical signs carries a very grave prognosis, it is not, as we used to think, invariably fatal. Babies with recognizable tuberculosis not infrequently recover.

LOCAL TUBERCULOSIS.

Cervical Adenitis. It is often very difficult to determine whether enlarged glands in the neck are tuberculous or not. In general it is true that glands which develop rapidly after an acute infection of the throat are not tuberculous, while glands which come up slowly without any acute infection in the throat usually are tuberculous. There are, however, many exceptions to this rule. For some reason or other tuberculosis of the cervical lymph nodes does not tend to spread from them to other parts of the body. It almost always remains a localized infection. It would be presumptuous for me to say much about the treatment of tuberculous glands in the neck. It has seemed to me, however, that when they are enlarged it is wise, unless they are broken down, to first take out the tonsils and later to remove the glands. It is unwise, in my experience, to hope that tuberculous cervical glands will disappear of themselves.

Tracheobronchial Adenitis. The tracheobronchial lymph nodes are probably more often involved in tuberculosis in childhood than any other portion of the body. This involvement is shown by extension of the bronchial voice, whisper and respiration below the seventh cervical spine. D'Espine's sign, that is, a whispering sound heard after the spoken voice over the spinous processes of the vertebra, dulness on percussion below the seventh cervical spine and interscapular dulness. The enlargement is always considerable when there is interscapular dulness. It must never be forgotten, however, that these glands may be enlarged from other causes than tuberculosis. The finding of evidences of their enlargement does not, therefore, in itself justify the diagnosis of tuberculosis.

Pulmonary Tuberculosis. Tuberculosis of the lungs in early life almost always starts at the roots of the lungs and extends outward and downward. It very seldom begins at the apices. In infants and young children the distribution is very likely to be bronchopneumonic in type. It must not be taken for granted that every prolonged process in the lungs in infancy and childhood is tuberculous. As a matter of fact, such prolonged processes are more likely not to be than to be tuberculous. They are very frequently influenzal in origin. Such processes may persist for weeks or even months, and then clear up entirely. In my experience, cavities in the lungs in childhood are very seldom due to tuberculosis, because children, as a rule, die before cavities have formed. Cavities are usually due to a previous abscess of the lung, or more often to bronchiectases resulting from fibrous changes in the lungs due to a previous pneumonia which, instead of resolving, has organized. They are also sometimes due to chronic bronchitis or are the result of some congenital anomaly.

Abdominal Tuberculosis. There are three main types of tubercular peritonitis: the ascitic type, in which the peritoneum is studded with

miliary tuberculosis and filled with fluid; the caseous type, in which there are large masses of newly formed tuberculous tissue in the mesentery and omentum, with sometimes a small amount of fluid; and the adhesive type, in which the intestines are all bound together, and in which there is no fluid. The physical signs must evidently be very different in these three types. The prognosis is far better in tubercular peritonitis than was formerly supposed. Many cases recover. It is impossible, however, to tell in the beginning whether an individual patient will do well or not. Personally, I am opposed to operation, except in the ascitic form, when it has failed to yield to medical treatment and repeated tapping, and in the other forms, when there is obstruction. In my opinion the prognosis is as good, or better, under medical treatment than with operation. Incidentally, in doubtful cases, the demonstration of disease in the testicle is very strong evidence in favor of tuberculosis of the peritoneum.

There seems to be a good deal of misunderstanding as to the use of fat in the food in these cases. It used to be given routinely in order to improve the nutrition, but then we were told that, on account of the involvement of the mesenteric lymph nodes, fat could not be absorbed and consequently did harm. The truth of the matter is that in some cases the mesenteric glands are involved and fat cannot be absorbed, while in others they are not involved and fat can be absorbed. The only way to determine whether they are involved or not, is by an examination of the stools. If the stools show that fat is not absorbed, the fat should be cut out of the diet. If they show that fat is absorbed, fat should be given and pushed.

Tuberculosis of the mesenteric and retroperitoneal glands is not uncommon. It may give rise to acute symptoms, suggesting those of appendicitis or acute intestinal obstruction. This possibility should never be forgotten in the differential diagnosis of acute abdominal conditions in childhood.

Meningeal Tuberculosis. I know of no condition in which it is harder to make an early diagnosis than tuberculous meningitis. There is nothing characteristic about the early symptoms. Vomiting without evident cause, headache, and disinclination to play are perhaps among the earliest symptoms, but these symptoms are common to many other conditions. The only way in which a physician can always make an early diagnosis is to speak of it as a possibility whenever a child is sick and there is no very evident cause for the illness. I fear, however, that if a physician did this he would soon lose all his patients. It must not be forgotten that the flaccid type of tuberculous meningitis is almost, if not quite, as common as the type with spasm, rigidity of the neck and convulsions, especially in infancy. I have seen many cases of tuberculous meningitis go through their whole course completely flaccid and with diminished or absent reflexes, and, in babies, even without bulging of the fontanelle. It is true that a very few patients have apparently recovered from tuberculous meningitis. The number of cases is so small, however, that we are not justified, it seems to me, in holding out any hope whatever of recovery in tuberculous meningitis. We must remember, however, that other conditions, such as syphilitic meningitis and encephalitis, may strongly resemble tuberculous meningitis in their symptomatology and that the findings in the cerebrospinal fluid in these conditions are the same, except for the absence of tubercle bacilli. There is always a chance for error, therefore, unless tubercle bacilli have been found in the spinal fluid.

I am confident that lumbar puncture has no curative action in these cases. In the spastic cases and in the cases with marked symptoms of cerebral irritation, lumbar puncture relieves them more, however, than any other method of treatment.

SURGICAL TUBERCULOSIS.

The physician must always bear in mind the possibility of surgical tuberculosis. He must remember that backache and pains in the legs may be due to tuberculosis of the spine. He must not forget that pains in the extremities are not always due to rheumatism, but may be due to tuberculosis of the joints. In fact, he should make the examination of the spine and extremities a part of his routine physical examination, in order that he may never miss conditions of this sort.

TREATMENT.

In my opinion the preventive treatment of tuberculosis is by far the most important. When tuberculosis has developed, the treatment consists of rest, food, fresh air, both day and night, and all the sunlight that there is. I have had but little experience with the Rollier treatment, but from what I have seen of it, I am convinced that it is very useful in tuberculosis of the bones and of the peritoneum. I have no confidence whatever in any drug treatment of tuberculosis, except for the relief of symptoms. I have had no personal experience with the tuberculin treatment. What I have seen of it, however, has been most disappointing, for it has seemed to me that it did more harm than good. My impression is that it is being used much less at present than it was a few years ago.

Tuberculosis in Children from the Standpoint of the Orthopedist.

By Joel E. Goldthwait, M.D., Boston.

It is hard to know what to say at a meeting of this sort, speaking as an orthopedist, on a subject as general as this. You certainly do not wish detailed accounts of the local treatment of

bone and joint disease, and a few general statements of principle seem best to meet the need. The orthopedist has quite generally come to recognize that tuberculosis of bones and joints is due very largely to low general resistance of the individual. This being the case, we have two distinct features to observe in our treatment. One is to treat the part locally where the disease manifests itself, and the other is to see that everything is done that is possible to improve the general condition of the individual. The time was when the wards of our children's hospitals were filled with patients having hip or spine disease where the entire emphasis was put upon the treatment of the local condition. We have gone far beyond that point. The general treatment should receive at least equal attention.

It seems to me that we can pass over the local treatment by saying that in tuberculosis of the bones or joints, the things that the orthopedist aims to do are first to prevent deformity, or correct deformity if it has already occurred, and second, to put the part in the position of physiological rest—then allowing function in so far as the part will tolerate it. Anything that the individual can do with a diseased part (the individual, not someone else) we need have very little fear of doing harm. If the child can walk about once, the part is properly protected—let him walk about. If it is very acute, the child will instinctively not walk about. As fast as the child is able to use that part, it is to be encouraged. Use stimulates circulation, encourages bone repair and does the very thing we ought never to lose sight of—which is to stimulate the cells about the diseased portion, so that they will be stronger and able to control the disease rather than to weaken those parts by too great inactivity.

For the general condition the things which we are now doing have for their purpose the increasing, in so far as is possible, the general resistance and therefore the more perfect control of the local manifestation of the disease. This applies not only to tuberculosis, it applies to all sorts of infections,—the principles are practically the same. The thing that has helped us most in this connection and has given us something that we can speak about definitely because it is easily checked, has to do with the way the diaphragm is used. It seems to me that this is one of the most important single features of the physiology of the human being. If the diaphragm is down at the level of the twelfth rib and does not move—the circulation of the abdominal organs must suffer. Normal respiration involves the diaphragm and the normal circulation in the abdomen demands the same thing. Ideal respiration means the diaphragm high with slight movement of the chest—slow respiration and slow pulse. The diaphragm not only helps in the respiratory development, but it also pumps the blood from the abdomen and the legs back to the heart. There is no other mechanism to accomplish this. With the diaphragm low, the circulation as well as the respiration will be interfered with and the general vitality will suffer.

Until you get the diaphragm so that it acts freely, you have not done all that you should do to improve the general resistance of the individual.

In trying to build up your individual to the best health—in trying to bring up their reserve so they can avoid tuberculosis—you have tangible things which you can check. Certainly there is more than just the microscope or the stethoscope in understanding these conditions.

Training for this physiological test is the sort of thing our preventoria should be doing. Get the children to stand properly. They will look better, but they will be more normal physiologically, and have greater resistance to tuberculosis or any other disease.

Tuberculosis in Children from the Stand Point of the Internist.

By Henry D. Chadwick, M.D., Westfield, Mass.

In considering the subject of tuberculosis in children it is necessary to divide them into groups as this disease varies very much in its manifestation according to the age of the child. There are three distinct types of tuberculosis in children:—the general or infantile, the hilum or juvenile, and the apical or adult form.

The infantile form in its primary stage assumes the characteristics of an acute, infectious fever, and progresses rapidly to a fatal termination, as general miliary tuberculosis, meningitis or bronchopneumonia. This is the usual course when infection occurs before the age of two years. From this age on the cause of infection is gradually modified by the production of a steadily increasing immunity. The tissues gradually acquire the power to react and the bacilli become fixed in the lymph nodes or more rarely in the epiphyses of the long bones or in the bodies of the vertebrae. After children have cached the age of five they rarely develop the infantile type of tuberculosis.

From five to twelve the lymphoid type of tuberculosis largely predominates. This period is a golden interval of low mortality between the infantile form on the one hand and the adult pulmonary form on the other, both of which have very high death rate. This tendency to focalize in the lymph nodes is the outstanding characteristic of juvenile tuberculosis. This was very apparent a few years ago when cervical tuberculous adenitis was such a common affliction in the children that came to the surgical outpatient departments. It is not so today largely because of the activities of the throat specialists in removing adenoids and diseased tonsils. Also the dentists must be given some of the credit because of the progress of dental hygiene.

Only comparatively recently, however, has the rôle of the tracheo-bronchial or hilum glands been given serious consideration in relation to the tuberculosis problem. As the lymphatics of the throat drain into the cervical glands, so the lymphatics of the lungs converge at the hilum and drain the entire pulmonary area into the tracheo-bronchial lymph nodes. There is this important difference however; the cervical glands only drain a small region, the tracheo-bronchial lymph nodes become the converging point of all bacilli that reach the lymphatics of the lungs, either by inhalation or through the pulmonary circulation that may take up infection from any part of the vascular system. There is, therefore, little chance for this group of glands in any individual to escape infection as long as tuberculosis is the universal disease that it is today. Fortunately the bacilli are so few in number or they are low in virulence or the individual's immunity is sufficient to prevent active disease in 70% of the people.

Pathologists are not yet in agreement as to whether the first lesion occurs in the lungs or in the tracheo-bronchial nodes. Krause has demonstrated that animals inoculated with tubercle bacilli exhibit foci of tuberculosis in the tracheo-bronchial nodes even when the lungs are free from disease. Furthermore, we do know that whenever the lungs show a tuberculous lesion that the tracheo-bronchial nodes are always involved. Most important of all to us is the fact that tuberculosis can be demonstrated in the glands of the hilum before any pulmonary lesion is large enough to be recognized by any method of examination now available.

Apical lesions or the adult type of tuberculosis rarely occur before the age of twelve years. After this age it is met with increasing frequency until the sixteenth year, when it becomes the usual type. The juvenile form after this age is rarely found as active disease. The healed hilum lesions are, however, often seen by x-ray or post-mortem in adults.

It is most important to recognize hilum tuberculosis when it is confined to the lymph nodes because this tissue has a tendency to keep the focus circumscribed. The resistence to tuberculosis between the ages of five to fifteen is greater relatively than at any other age period. Arrest or cure can reasonably be expected if proper treatment is carried out at this time.

There is a transition period due to the developing immunity between the ages of two to five, when either the infantile or juvenile type of tuberculosis may prevail. It is a dangerous period in an infected child's life. The disease is masked more completely than it is at later years. The child is usually well developed and nourished and of good color. Localizing symptoms may be delayed and there ensues an anxious period when the physician is puzzled to know the cause of the occasional reoccurring febrile attack. Is it due to tuberculosis, and if so will the tubercle focalize in the head of a long bone, in the vertebral column, in the peritoneum, in the intestines or in some group of lymphatic glands? Those are some of the questions that a clinician has to answer.

Again we have another dangerous transition period after the child passes the age of twelve. Something as yet unknown to us occurs during the age of adolescence that influences the course of tuberculosis. The cases one sees of involvement restricted to the region of the hilum become fewer and the number of apical or adult type of tuberculosis increases as the patients approach the age of sixteen. It occasionally happens, but it is extremely rare to find a case of active hilum tuberculosis in an adult without apical lesions.

Juvenile tuberculosis involves the lymphatic glands at the hilum and the adjacent peribronchial tissue in its early stages. If the disease progresses the deep parenchymatous tissue between the trunks of the bronchial tree becomes invaded by infiltration. There may be peribronchial thickening with beading along the trunks that extend into the second and third interspaces.

Adult pulmonary tuberculosis involves the apices and the peripheral parenchymatous tissue. If one bears in mind this difference in the pathology of the two types of disease it will aid materially in diagnosis. The physical signs are different because in one the focus is superficial and in the other it is deep. Furthermore, in one the alveolar structure of the lung is involved and in the other the lymphatic tissue. Auscultation therefore does not give any positive information in early tracheo-bronchial tuberculosis. As the disease progresses and invades the deep parenchyma and peribronchial tissue changes in the breath sounds are sometimes heard in the infraclavicular triangle and along the vertebral border of the scapulae. Râles are not heard in hilum tuberculosis; the structures in which râles are produced, namely, the smaller bronchi and alveoli, are not involved until the pulmonary or adult type of tuberculosis is developed. If râles are numerous in any part of one or both lungs of a child from five to twelve they are probably due to some non-tuberculous infection, such as bronchitis, asthma, bronchopneumonia or abscess. If the râles are due to pulmonary tuberculosis, it is a case in the advanced stage, which fortunately rarely occurs in children of this age. One should not expect to elicit râles in early juvenile tuberculosis; when heard they should be regarded as negative evidence and should be considered due to non-tuberculous causes unless enough positive signs and symptoms of tuberculosis are present to justify such a diagnosis.

Percussion, however, is of great value in determining consolidation at the root of the lung. One must develop a careful technic to be of serv-

ice in revealing changes in the deeper structures of the lung. The child to be examined should be standing with shoulders slightly sloping forward with all muscles of the shoulder girdle in complete relaxation. Light percussion must be used with dependence for values placed more upon the tactile sense than upon the sound produced. It is always better to begin from below and progress upward. The reason for this is that the bases are seldom diseased and one can in this way perceive the normal resonance first for a standard and thus more easily detect any abnormal changes in the upper part of the lung. It should also be borne in mind that in children with active tracheo-bronchial nodes disease there is a reflex condition that tends to produce a chronic spasm of the muscles covering the upper part of the thorax posteriorly. This may be sufficient to change the percussion note enough to simulate dullness due to tuberculous infiltration of the apices. As a check, however, upon such an erroneous interpretation, one finds in such cases that the resonance is normal over the apices anteriorly and râles are not present.

SYMPTOMS.

In making a diagnosis in children great significance must be placed on symptoms which are an evidence of tuberculin toxemia. In the order of importance these symptoms are fatigue or weakness. This is the first and most frequent of symptoms of onset. It is exhibited often as a change of disposition. A sunny, happy child becomes nervous and fretful, or an active, energetic one becomes languid and listless. Games no longer interest them and school work that was formerly enjoyed becomes a hardship. Light mental or physical efforts tire. Lack of appetite, failure to gain, or—more significant—loss of weight; tendency to profuse perspiration; fever. In hilum tuberculosis the toxemia does not produce continuous fever. It occurs only after unusual exercise or fatigue from any cause. It is transitory. An afternoon temperature that does not go above 99.6 may be considered within the normal limits. A temperature of 101 or more is usually due to some non-tuberculous cause. It should be remembered that tuberculous disease of the lymph nodes or pulmonary tissues when not accompanied with pyogenic infection does not produce a marked rise in temperature. A purely tuberculous disease produces only a low grade of fever and then only when an increased amount of tuberculin is absorbed, as a tuberculin tolerance is gradually acquired. We must not, therefore, consider the absence of fever to contraindicate juvenile tuberculosis. Febrile attacks are infrequent, long fever-free periods are the rule.

A child's pulse is so erratic and normally so much higher than in adults that it is of no value in early diagnosis.

TUBERCULIN TEST.

We have found the intradermal tuberculin test so much more reliable than the Von Pirquet cutaneous method that we are using it exclusively. Absorption is certain and the dose accurate in each case. We give .01 m.g. of tuberculin intracutaneously for the first dose. If there is no reaction a second dose of 0.1 m.g. is given.

PREVIOUS HISTORY.

The exposure of a child to tuberculosis in the home, if long continued, is evidence of great weight in so far as it indicates the probability of massive and frequent infection. Such a child should be provided with excellent hygienic surroundings and care, even if there are no symptoms of disease. The lack of family history, however, as regards exposure to tuberculosis in the home, is of little value and should have no negative weight in diagnosis if there are definite signs and symptoms of disease. Out of a series of 200 children in our care 34% gave no history of intimate contact with any case of tuberculosis in the home.

DIAGNOSIS.

The points upon which a diagnosis of juvenile tuberculosis must be based are these:—

1. History of frequent colds or predisposing causes such as measles, whooping cough, and influenza. These diseases lessen the resistance to infection and tuberculous disease frequently follows in their wake. Also the frequent association of phlyctenular disease and scrofuloderma with hilum tuberculosis should always be kept in mind.
2. Symptoms of tuberculin toxaemia, viz.—fatigue, malnutrition, anorexia, febrile attacks.
3. Exposure to tuberculosis in the home.
4. Positive cutaneous tuberculin test.
5. Evidence of enlarged tracheo-bronchial lymph nodes and infiltration or thickening of the adjacent tissues as demonstrated by physical signs and confirmed by roentgenogram.

In conclusion I wish to emphasize the point that juvenile tuberculosis is a manifestation of primary tuberculosis, apparent only in the lymph nodes and deeper tissues at the root of the lung. The adult type is a manifestation of tuberculous disease involving the superficial parenchymatous and peribronchial tissues of the lungs. The tissues involved are radically different in structure. The way in which they react to disease is distinctive. Therefore when we examine the chest of a child we should not expect to find râles and other signs of pulmonary tuberculosis. We should look carefully for evidence of bronchial adenitis. When we find enlargement of the bronchial lymph nodes with thickening of adjacent tissues, accompanied by symptoms of a tuberculin toxemia, together with a positive intracutaneous test, a diagnosis of hilum tuberculosis should be made.

Tuberculosis in Children from the Standpoint of the Surgeon.

By Lloyd T. Brown, M.D., Boston.

In dealing with such a subject as Surgical Tuberculosis one finds himself confronted with problems, the solution of which is very difficult. There are many points to be touched upon, any one of which could well occupy the entire time of such a gathering as this. It is out of the question to discuss all the forms of non-pulmonary tuberculosis and I shall leave to people better qualified than I the question of the glandular forms, such as tubercular cervical adenitis, tubercular peritonitis, etc. Perhaps the first and the most important point to be mentioned is that surgery in tuberculosis must be approached with a very different point of view than in almost any other condition. We long ago learned that it is impossible to entirely eradicate by any surgical procedure all of the tubercular process, but we have also learned that if the proper after-care can be given it is not necessary to entirely remove the focus. Therefore, it can be seen that the surgical procedure in itself is only an incident in the treatment of the disease and that the real problem is not the operation, but what facilities can be found for the proper preoperative and post-operative care of the patient.

In order to emphasize this fact that the surgical treatment of tuberculosis, referring to bone tuberculosis, is in reality a very small part of the treatment, the following figures are quoted from the last three annual reports of the Children's Hospital:—492 cases of bone tuberculosis were admitted to the wards because care at home or in the Out Patient Department had not sufficed. Of these 492 cases, only 55 cases were operated upon, all but 4 of which were for simple drainage of abscesses or similar procedures. These four exceptions were operated upon for spinal immobilization.

The question of the incidence of bone tuberculosis was also a difficult problem and one at the present time impossible to answer. Although a law has been in existence since 1907, requiring the reporting to the State of all cases of bone or non-pulmonary tuberculosis, the physicians and hospitals of this State have neglected this duty so completely that there are no such statistics available for the non-pulmonary as there are for the pulmonary cases. Hospital reports give most inadequate information on the total number of cases in the State, but are very surprising in showing the number of cases which do come to the clinics. As quoted above, in three years 492 cases entered the wards of the Children's Hospital. At the Massachusetts General Hospital the Orthopaedic Department during the years 1920–21 treated 291 cases of bone tuberculosis, 81 of which were children and 210 adults. Of these cases, 79 adults and 25 children had tuberculosis of the spine. Of the 492 Children's Hospital cases 243 were tuberculosis of the spine. Tuberculosis of the hip was next in frequency of occurrence at both hospitals. At the Massachusetts General Hospital 41 adults and 34 children, and at the Children's Hospital in three years 161 cases of tuberculosis of the hip were recorded. Knees were next in frequency, and the remaining cases were scattered all over the body. Since, as mentioned above, the time allotted to this paper is so short, it is impossible to deal with more than one condition. Therefore it is considered advisable to take up that condition which at the present time is most frequent in occurrence and which from force of circumstances in the majority of hospital cases is very inadequately treated in both children and adults. I refer to tuberculosis of the spine. That the occurrence of tuberculosis in the spine is the most common site of bone tuberculosis is shown by the above figures and also by figures found at the Rizzoli Orthopaedic Institute in Italy, where from the years 1907–1919, 45.5%, or 1271 out of 2790 cases of bone and joint tuberculosis, were in the spine.

The bacteria responsible for this condition are, of course, the tubercle bacillus of either the bovine or human form. When it is considered that 25 to 40% of the milk producing herds in Massachusetts show positive tuberculin reactions, the recent passage of the law by the Legislature which allows the State to make use of Federal Aid in cleaning up our herds, is a matter of great importance. In New York City, where the control of the milk situation is very carefully carried out, the results have been marked. A recent letter from an orthopaedic surgeon at the Hospital for the Ruptured and Crippled in New York says that twenty-five years ago the tubercular cases were the most common ones in the clinic, while at the present time they are among the least common.

The most valuable and careful work that is being done throughout the state in educating the people how to prevent infection from tuberculosis cannot be too highly endorsed, and it is the duty of every physician to further the cause in every way possible. Since, however, there will always be a certain number of cases to be looked after, it is of the utmost importance that the methods of treatment which tend to give the best functional results should be understood and carried out by all.

Here is a photograph showing the results in three girls of the treatment that has been used in this country for many years. This treatment is the supportive and ambulatory method. By this is meant recumbency as long as there are any acute symptoms; after this, plaster jackets and braces and allowing the patient to be up and around. Two of these girls had their spines immobilized by the operative method of putting a section of their tibiae into the spinous process, the so-called Albee operation. The result is what you see here. Any other form

of treatment was impossible in these cases because there were no places where recumbency under proper supervision could be carried out. That recumbency at home in the average hospital case is impossible can be seen when one finds in the hospital records such notes as this: "Patient comfortable on frame. Mother says she finds the child crawling or walking around with the frame on its back."

If the ambulatory treatment gives such results, what then is the ideal treatment we should all strive for? The literature at the present time is filled with articles about this problem. It must be remembered that tuberculosis in a child or adult is a serious condition, and although the patient may become free of symptoms with two or three months of recumbency or after an operative immobilization of the spine, this does not mean that the disease has been cured. If one follows these cases for a period of years a recurrence of the condition is very commonly found years afterwards, and what is still more important the tubercular infection may recur in another part of the body.

The method of treatment advocated by such men as Sorrel and Calvé at Berck-sur-Mer in France, where there are two hospitals with a capacity of more than 2,000 beds just for the city of Paris alone, must be considered with great care. Rollier, the strongest advocate for heliotherapy, or the sunlight treatment, also gives us much food for thought. Recent letters from Canada and New York from men who are dealing with these conditions all practically agree as to the ideal treatment.

This treatment differs in children and adults. In children the bones are soft and rapidly growing. The disease tends to destroy the vertebrae and the intervertebral disc. The process of healing consists in the calcification or laying down of lime salts in the diseased areas. This process is a very slow one, requiring months or years. Although all painful symptoms may rapidly disappear with recumbency, the pathological process is still present, and if the child is allowed up, even with the supportive jackets or braces, the superimposed weight tends to cause pressure on the slowly healing pathologic process and the result is either a recurrence of the symptoms or, as in the cases shown, an increase in the deformity. The operative immobilization of the spine in children, as brought out by the investigation of the commission appointed by the American Orthopaedic Association to look into this subject and as seen in these two cases, does not in itself prevent further deformity.

It is our belief, therefore, that in children a period of recumbency either on a frame or in a plaster shell should be carried out for 2–3 years, preferably 3. This means that during this time there should be no superimposed weight on the spine, such as comes from sitting or standing up. At the end of this time, if the x-ray picture shows signs of new bone formation and there are no signs of acute disease, the child may be allowed very short periods of being up, provided the spine is given sufficient support. At least two years more of gradually increasing weight bearing is necessary before it is safe to allow complete freedom, and some men think supports should be worn until adult life. With such a plan of treatment we should expect to be able to prevent such deformities and such cripples as these. And let me add here that these three are only a very small proportion of the number coming to our hospitals and Cripple School. This may seem like a very long time, but these children here, like almost all the others of their kind, are still coming to the hospitals for treatment and are still wearing braces 12 to 15 years after their treatment was started.

In the adult cases conditions are different. We no longer are dealing with growing bone and we are dealing with a group of cases in which the time element is of great importance. For this reason if anything can with safety be done which will shorten the time element, it is advisable. With our desire to shorten the time element, however, we must not forget, as Calvé says, that an adult with Pott's disease is tuberculous with a grave focus and is liable to develop other foci of the same nature, and that the general treatment is the main thing.

It has been stated, and experience has proven it to be so, in selected cases, that a stabilizing operation on the spine, either the fusion operation as described by Hibbs, or the bone graft of Albee, or the bone periosteal flap method of Delangenière, may be a successful procedure. The selection of cases, however, is very important. A series of cases at the Massachusetts General Hospital has brought out the fact that nearly half of the cases operated upon had more than one tubercular focus. In some it did not develop until five years after the operation and in others it was discovered first. Any case with an acute or even subacute pulmonary condition is a poor operative risk. One such case developed a rapidly fatal miliary tuberculosis after the operation. Such possibilities as two separate and distinct foci of disease in the same spine must be considered. This occurred six times in a series of 29 cases at the Massachusetts General Hospital.

As has been said before, however, the operative treatment which is distinctly inadvisable in children, must be considered merely as an incident in the treatment of the adult. With or without the operative treatment, heliotherapy and recumbency, which means the removal of all superincumbent weight on the spine, are the most important features. Without operation, recumbency is necessary for at least a year, and this is followed by a jacket or brace for two to three years more. With operation, the time of recumbency may be shortened to six months, but the jacket or brace support should be worn for a year or two. Some patients report that they are still

wearing it for four or five years after the operation because they feel safer.

With these necessities for treatment in mind, what are the facilities throughout the state for affording such treatment? At the present time there is not a single state or city institution which is properly equipped to carry out effectively such treatment. There are one or two private charity hospitals or homes which are able to take a few children, but practically no adults. There are some institutions which are willing to take a few such cases, but their equipment and personnel is such that they do so largely under protest. It is for this reason, gentlemen, that our results in the treatment are not what they should be. Rollier in 1913 reported 86 per cent. cures in 198 cases, but there are few people of the total number afflicted with spinal or bone tuberculosis who can afford the luxury of such a place as Rollier's. DeBrumer in 1921, speaking of the results in patients who were treated under the most unfavorable home conditions, says the mortality rate was 42 per cent. Although he gives the mortality rate as 42 per cent., he says nothing about the cases such as those which are still drifting into our clinics after 12 or 15 years of treatment, and who, from the economic point of view, are such a tremendous loss to the community.

In conclusion I should like to bring out certain points:

1. That at present we have no accurate statistics in this state as to the number of non-pulmonary cases of tuberculosis, and that this lack is due to the physicians and hospitals of the state failing to report their cases. This can and should be corrected.

2. That surgery in tuberculosis is and should be the exception, and that it should always be made only an incident in the general and necessarily prolonged treatment.

3. That in children operations for spinal immobilization are not advisable and without the proper postoperative care in adults do not give the results claimed.

4. That in tuberculosis of the spine in both children and adults the ambulatory and supportive treatment has not given satisfactory results.

5. That in children the ideal treatment is recumbency for at least two to three years, followed by carefully observed and protected weight bearing for two years more.

6. That in adults in selected cases the operation for spinal immobilization may be advisable if it can be followed by at least six months' recumbency and a year or more of supportive treatment.

7. That there are no hospitals in the state with an equipment or a personnel which can adequately carry out the proper prolonged treatment of recumbency and heliotherapy.

8. That it is the duty of the medical profession of this state to urge our legislature to provide as adequate opportunity for the treatment of non-pulmonary tuberculosis as is provided for the pulmonary cases.

The X-Ray in the Diagnosis of Pulmonary Tuberculosis.

By Samuel W. Ellsworth, M.D., Boston.

It is not proposed to describe the technical details of the use of the x-rays by means of the fluorescent screen and radiogram, but rather briefly to indicate some of the possibilities and limitations of this method of examination in the study of tuberculosis of the lungs.

The screen serves best in observing the movements of the thorax, diaphragm and heart during respiration.

The film or plate gives a permanent record of the details of light and shade.

The stereoscopic films afford perspective vision and position of shadows.

The lung fields, distended with air, offer but slight resistance to the passage of the rays and present a brilliant background for the study of the more opaque tissues. The depth of the shadows cast is dependent upon the density and mass of the structures traversed by the rays.

We have, then, a remarkably accurate means of detecting the presence or absence, the position, extent and the character of pathologic conditions in the lungs. Pathology is represented by abnormal densities shown on the film or screen, and no other means have been found which will give nearly so accurate a picture of lung pathology during life as the x-ray film.

Slight abnormalities in density require careful study to detect; the gross lesions are often easily observed. Both types demand especial discrimination to determine the probable etiology.

There are but few diseases which justify a diagnosis from the x-ray observations alone. Interpretation of the x-ray findings demands a careful analysis of the data observed; definite diagnosis or etiology can be made only by a coördination of the history, physical signs and symptoms and laboratory data.

It is necessary to emphasize that x-ray observations concern not merely one spot of density, but rather the entire lung fields, the level of the diaphragm, the excursions during respiration, as well as the position and movements of the heart.

If we accept the statement that every lung shadow may represent one of many pathological lung lesions, the necessity of careful differentiation is obvious.

Doubtful cases may require repeated examinations; this is especially true in many cases of early pulmonary tuberculosis. To appreciate the early and slight lesions of tuberculosis requires

some degree of familiarity with the normal lung picture, and the denser shadows should be identified with the gross specimens and sections from the post-mortem table.

Tubercular infection in some form occurs with such frequency, that it is now recognized as an almost universal condition.

The suspected or doubtful case is the great medical problem, where the delayed or uncertain diagnosis fails to impress the patient and measures to control are neglected until the disease is well established. Not infrequently the x-ray will disclose other conditions, such as heart disease, rather than the suspected tuberculosis, or, on the contrary, no evidence at all of pulmonary lesion.

The x-ray examination as an accessory to, and combined with the clinical examination, enables one to make an earlier diagnosis in many doubtful cases of disease of the chest, with an accuracy not obtained heretofore, and in my opinion, no medical examination can be considered as completed which has neglected this method of examination.

DISCUSSION.

DR. EUGENE R. KELLEY, Boston: I think we will all agree that this is perhaps the most interesting session of the Tuberculosis Section for several years. I think the officers of the Section are to be congratulated on the happy expedient they struck of having a symposium on some of the more interesting phases of tuberculosis in children.

I want to say two or three words on points that interested me very much in the papers presented this afternoon. I wish to reiterate what Dr. Brown brought out in reference to the very poor reporting of non-pulmonary cases of tuberculosis. It is an old subject with the State Department of Health and probably we are very much to blame for it not being better reported. But frankly, we have been at a little bit of a loss as to how to bring about better coöperation. The medical profession has responded very well, I think, on the reporting of pulmonary tuberculosis.

If you look back over the statistics, you will find in the year 1915, when there was a resolve passed looking into the question of facilities for non-pulmonary cases, there was very much better reporting than there had ever been before or since. The reporting of non-pulmonary cases is one of the things that needs to be brought to the physician's attention. Another thing that accounts in a considerable degree for poor reporting is the failure on the part of institutional authorities to realize that the legal obligation rests the same on them as on the individual physician to report a case. It has happened in four large institutions a few years ago you could collect off their records more cases of non-pulmonary tuberculosis than were reported in the whole State. Of course, the answer to that is that the institution men leave it to the family doctor, who knew the case before it went to the institution, to make the report. The law puts the same obligation upon the institution as upon the physician.

I was also very much interested in the percentages that Dr. Morse gave, of diagnoses at the Children's Hospital, in the house service. It is a rather curious coincidence—the percentages, as I roughly calculate them, being about 8 per cent. That is just about the percentage of diagnoses that we are making in the special examination clinics for children which we are holding in various parts of the State. The point is that both of those groups represent a sort of preliminary rough sifting process. In the hospital, they are there because they are sick. In the groups as taken in the special field clinics, they are selected because they have shown some of the obvious symptoms that Dr. Chadwick laid stress upon. They are all school children, who are picked out as the obviously underweight, very much fatigued, or the children who were showing both those symptoms plus an inability to keep up in their school work.

The statistics of diagnoses made to entire number of children seen for the Out-Patient Department service of the Children's Hospital struck me as being poorer than they theoretically ought to be. Probably they cannot adequately diagnose tuberculosis in children when they see it before them in the Out-Patient Department service at that institution or any other institution's out-patient department. That is inevitable. It would be impossible under those conditions to establish positive diagnoses in these cases, where it could be done under more favorable conditions for longer observation.

DR. RICHARD L. MILLER, Boston: I have been very much interested in tuberculous cervical glands, and am glad to say just a few words. I have had the privilege for a long time of working with Dr. Bartlett in the non-pulmonary tuberculosis clinic at the Massachusetts General Hospital, where we have seen hundreds of cases of enlarged cervical glands. In the first place, I agree with Dr. Morse that it is, at least at the outset, a local process. We think that it seems to confer a certain amount of immunity, and that pulmonary tuberculosis is not common in those who have cervical tuberculosis.

There has recently been some work done in investigating tuberculosis of the lungs, more especially the apical pleura, by x-rays, to determine whether tuberculous infection can come in through the tonsils and adenoids and via the cervical glands to the apex. Certain men have drawn conclusions as a result of these x-ray examinations that that is possible, and is not uncommon. The anatomy of the cervical lymph glands does not, in our opinion, make that possible, because they do not drain to or very near to the apices of the lungs, but into the jugular trunk, which empties into the vein on the right and into the thoracic duct on the left.

Dr. Morse says that the one treatment *par excellence* for these glands is surgery. Our conclusion has been that surgery is not primarily the treatment of choice. Surgery is a thing that must be put off until you have tried other things, though acute fluctuant abscesses must be operated on. The average case of tuberculous glands should not at once be handed over to the surgeon, and though our business is surgery, we do not believe in it to the exclusion of other methods.

Certain writers have recently said that the x-ray will cure most of them, but in our experience it will cure only a few. We have been working a certain amount with artificial light, the mercury vapor quartz lamp—the so-called Alpine Sun Lamp. This does a great deal of good, especially when there are discharging sinuses, and we have just this spring had several most remarkable results with it.

We have also used for a long time tuberculin, and we are perfectly convinced that in a fair number of cases it does a great deal of good. We have seen certain cases in which the glands absolutely melt away under tuberculin. The difficulties of its use are that a lot of people do not understand it—they give too much—they may give too little, or the patients do not follow treatment conscientiously. Tuberculin carefully given and conscientiously followed out, supplemented with hygiene, and perhaps with the Alpine lamp when it is deemed wise, and heliotherapy, will cure a good many cases. I think it is an im-

portant thing to bear in mind that surgery is not primarily a proper way to treat tuberculous glands of the neck.

DR. S. A. KNOPF, New York: I want to thank you, Mr. Chairman, for calling on me. I consider myself one of the most fortunate individuals in the world. I came to Boston on an entirely different errand, and now I am treated to a lesson in tuberculosis. I have learned already much that was worth coming for. I feel at a loss to know what I can offer to you that has not been presented to you before or that will not be offered to you later. Still, since my friend of many years, your distinguished Chairman, Dr. Otis, has asked me to address you, I will venture to discuss something which might perhaps deserve the name of being new. I have spoken of it before and have called it "A Physiological Adjuvant in the Rest Cure of Pulmonary Tuberculosis."

Ever since Dettweiler devised the rest cure in a reclining chair in the open air as a means of accomplishing the cure of pulmonary tuberculosis, the idea of exercise in the open air as a therapeutic measure in tuberculosis has been abandoned by the majority of physicians. Many attempts have been made by numerous experimenters to add local rest for the tuberculous lung to the general bodily rest treatment. Denison and Sewall suggest mechanical restrictions by means of adhesive plaster or belts. All report good results. I believe you can accomplish something, but not a great deal. Of course, with the advent of artificial pneumothorax, we thought we had realized the ideal in putting the infected lung at rest. But, alas! we cannot get in every time. There is a vast difference of opinion as to the advisability of artificial pneumothorax in all cases. I, for one, cannot advocate it in all cases. We have the pleuritic adhesions to overcome. The operation devised by Jacobaeus, who, with the aid of a thoracoscope and a long cautery protected by a cannula, divides the pleuritic adhesions, may help to diminish the number of cases which have heretofore been considered unsuitable for artificial pneumothorax. In dividing the pleuritic bands with the bistoury or even with the electric cautery, there will always be some danger of coming across very vascular adhesions or such extensive ones that there may be danger of haemorrhage and rupturing the lung. The operation has thus far yielded a rather high mortality so that it must be restricted to a very few cases.

Comparative physiology teaches us that the slow breathing animals are less susceptible to tuberculosis than the fast breathing ones. The horse breathes only 8 to 10 times a minute—the cow 15 to 20 times. The turtle breathes so imperceptibly that you cannot perceive it. This, at any rate, impelled me to make a study of restricted diaphragm breathing. I tried it on myself first. To my surprise, I found I could very comfortably breathe and exist with six and eight respirations a minute, limiting them to the diaphragm. Still, I was coward enough not to publish anything until I had some authority. I consulted Prof. Lusk, of Cornell, and asked him if there was any danger of my increasing the accumulation of carbon dioxide. He wrote me that it would not do any harm; that if I had too much carbon dioxide, nature would call for more oxidation. Through the courtesy of Prof. Lusk, I was permitted to make some spirometric tests at the Russell Sage Institute. One of his assistants kindly lent himself to the experiment. After I had demonstrated to him how he could diminish the number of respirations to five per minute, and limit them to the basal portions of the lungs, he was surprised to find with what comfort he could do it, and thought he could do it indefinitely. I found he took in more air than ordinarily. In ordinary respiration, his tidal volume was 600 cc. per respiration. I observed that the volume of tidal air increased considerably while he was lying in a recumbent position, breathing through the tube of the spirometer. I tried it on patients. I did not publish anything. I made my report to the Surgeon General of the U. S. Public Health Service, to which I am attached. It was returned with approval. The results were these: In advanced cases, I noticed, after a few months' trial, a tendency to fibrosis. In the moderately advanced cases, I noticed a decrease in pulse rate and a decrease in cough.

In conclusion, two observations—one on haemorrhage, the other on psychology. Two patients of mine who had had bloody expectoration and who stated that it always lasted many days, assured me that this quiet and diminished breathing shortened the usual duration of their blood spitting considerably. I had one man, a very intelligent gentleman, whom I had advised to use this restricted diaphragmatic breathing. After twenty-four hours he sent a messenger to me asking me to come at once, that he could not stand it any longer. I could not go at once so I sent my assistant. He came back and said the man was very unhappy and he thought I had better go and see him. I went as soon as I could. The patient said to me: "Ever since you told me I should restrict my breathing I am a most unfortunate individual; I am unhappy: I cannot stand it any longer." I said: "You take deep breaths any time you want to. I did not mean to stop you from breathing deeply." The next time I went he said: "Ever since you told me I could take a deep breath I do not feel the need of it any more."

Try it on yourself and your patients. I hope you will have the same success, and better, than I have had, but, as your distinguished townsman has told you, it is an important thing to take all things into consideration. As you all know, the majority of tuberculous lesions are confined to the upper region of the lungs. By giving them a rest you will be surprised how much good you can do your patient—and to do good is our calling.

Original Article.

AN INVESTIGATION OF THE RELIABILITY OF LABORATORY TESTS AND A DISCUSSION OF TECHNIQUE OF LABORATORIES IN AND NEAR BOSTON.

(Continued from page 446.)

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PART 2.

WASSERMANN TESTS — A COMPARISON OF REPORTS FROM SEVERAL LABORATORIES ON IDENTICAL SPECIMENS.

The method first adopted for comparing Wassermann tests was to pool the left-over serums from positive, negative or doubtful cases and then divide into a sufficient number of specimens to supply the laboratories. The first series had two positive, two negative and two doubtful specimens.

Here there is complete agreement on strong positives and on straight negatives. Border

WASSERMANN TESTS—FIRST SERIES.

	Specimens.					
Lab.	1	2	3	4	5	6
1	—	+	+	—	—	—
2	Doubtful	+	+	—	—	Broken tube
3	—	+	+	—	—	—
4	±	++++	+++	—	—	++
5	—	+	+	—	—	Mod. Pos.
6	—	+	+	—	—	—
7	—	+	+	—	—	—?

line serums receive reports varying from positive to negative, depending, probably, on the strength of the hemolytic system used.

WASSERMANN TESTS—SECOND SERIES.

Lab.	1	2	3	4	5	6
1	+	—	Uns.	Doubt	Uns.	—
2	+	—	+	+	+	—
3	+	—	hem.	hem.	+	—
4	a. c.	—	a. c.	a. c.	a. c.	—
5	+	—	—	—	+	—
6	+	—	+	Doubt	+	—
7	+	—	a. c.	a. c.	+	—

Serums No. 1 and 5 were identical from pooled positive serums. Laboratory No. 1 reports 1 positive and 5 unsatisfactory. Laboratory No. 4 reports both anticomplementary, and inquiry indicates that Laboratory No. 4 is using an insufficient dose of complement.

Serums No. 2 and 6 from pooled negatives all agree upon. Serums No. 3 and 4 are identical from pooled doubtful serums. Reports on these vary from negative through doubtful and anticomplementary and hemolysed to positive. Laboratory No. 6 reports No. 3 positive and No. 4 doubtful.

WASSERMANN TESTS—THIRD SERIES.

Lab.	1	2	3	4	5	6
1	—	—	+	+	+	—
2	—	—	+	+	+	—
3	—	—	+	+	+	a. c.
4	—	—	+	+	a. c.	—
5	—	—	+	+	a. c.	—
6	—	—	+	+	+	—
7	—	—	+	+	a. c.	—
8	—	—	+	+	+	—

Specimens 1, 2 and 6 are identical. All agree except an a. c. report by Laboratory No. 3 on specimen 6. Specimen No. 5 was from pooled doubtful serums. It seems the pooled serums gave a stronger reaction than did the individual ones, since five out of eight laboratories report this specimen positive.

On the whole, the indications from these three series of tests seem to be that with a strong positive or with a straight negative specimen reports from reputable laboratories will agree, while with a weakly positive or doubtful specimen the report will vary from negative to positive, depending on the individual adjustment of the hemolytic system.

Comparative Tests with Specimens from Individuals.—In the discussion of the work done on pooled serums differences of opinion arose which, it seemed, might be cleared away by running a series of tests on serums from individuals where the history was known. Dr. Hinton kindly agreed to furnish these serums from the laboratory of the Boston Dispensary.

Besides the Boston Dispensary laboratory, the following laboratories joined in the tests: Boston City Hospital, Boston Health Department, State Wassermann laboratory, Homeopathic Hospital Laboratory and the Sias Laboratory.

The serums were distributed Thursdays and tests were made Fridays, excepting in the Dispensary, which made the tests a day earlier.

In this series of forty-three tests there were twenty-three on which all the reports agree as negative; twenty of these have no history of syphilis; the others, Nos. 9, 22 and 31, are cases of treated syphilis.

There were five on which all agree as positive, Nos. 1, 3, 24, 25 and 30, all giving histories of syphilis.

There were seven on which there is practically agreement in the report of negative, the minority reporting doubtful or doubtfully weak positive, which the technician of the latter laboratory explains might as well be reported doubtfully negative.—Nos. 4, 8, 16, 17, 19, 34 and 36. Four with a negative history, two of treated syphilis and one where there is doubt.

There were two on which there is practically agreement on the report of positive, a minority worker reporting doubtful in one case and anticomplementary in the other. These are Nos. 11 and 32, both with histories of syphilis.

Thus, of the forty-three cases, or 258 tests, there remain but six in which there are any real disagreements.

Case No. 5, reported positive by five workers, negative by one, gives a history of syphilis, with at least twelve arsphenamines.

Case No. 7, reported positive by four, anticomplementary by one, negative by one, gives no history of syphilis, and was thought probably tubercular. In view of the Wassermann findings, the case is probably syphilitic.

Case No. 12, reported positive by four, doubtful by one, negative by one, has a history of two miscarriages and two arsphenamine treatments.

Case No. 13, reported positive by three, doubtful by one, (?) negative by one, and negative by one, gives a history of syphilis with thirty to forty arsphenamines.

Case No. 38, reported positive by three, doubtful by two, negative by one, gives a history of syphilis, with six positive and three negative Wassermanns.

Case No. 42, reported negative by four, doubtful by one, positive by one, is evidently from the history a case of treated syphilis.

No. of Specimen.		LAB. A. State antigen.	LAB. A. Chol. antigen.	LAB. A. Ac. Ins. with 1/10 serum.	LAB. A. Ac. Ins. with 4/10 serum.	LAB. A. Report.	LAB. B. State antigen.	LAB. B. Ac. Ins. with 1/10 serum.	LAB. B. Ac. Ins. with 4/10 serum.	LAB. B. Report.
14566	1	+	+	+	+	Strong Pos.	+	+		Pos.
14585	2	—	—	—	—	Neg.	—	—		Neg.
14565	3	+	+	—	+	Mod. Pos.	+	—	+	Mod. Pos.
14583	4	+	—	—	—	Neg.	—	—		Neg.
14548	5	+	+	—	+	Mod. Pos.	+	—	+	Mod. Pos.
14580	6	—	—	—	—	Neg.	—	—		Neg.
14574	7	+	+	+	+	Strong Pos.	+	+		Pos.
14588	8	+	—	—	—	Neg.	—	—		Neg.
14559	9	—	—	—	—	Neg.	—	—		Neg.
14578	10	—	—	—	—	Neg.	—	—		Neg.
14595	11	+	+	+	+	Strong Pos.	+	+		Pos.
14546	12	+	+	—	±	Doubt.	—	—		Neg.
14555	13	+	+	—	—	? Neg.	+	—	—	Doubt.
14568	14	+	—	—	—	Neg.	—	—		Neg.
0208	15	—	—	—	—	Neg.	—	—	—	Neg.

No. of Specimen.		LAB. C. Chol. antigen 1 serum 0.1.	LAB. C. Antigen 1 serum 0.05.	LAB. C. Chol. antigen 2 serum 0.1.	LAB. C. Antigen 2 serum 0.05.	LAB. C. Report.	LAB. D. G. pig heart antigen.	LAB. D. Human heart antigen.	LAB. D. State antigen.	LAB. D. Report.
14566	1	4	4	4	4	Strong Pos.	+	+	+	Pos.
14585	2	—	—	—	—	Neg.	—	—	—	Neg.
14565	3	4	±	4	±	Mod. Pos.	+	+	+	Pos.
14583	4	2	—	±	—	Doubt. Weak Pos.	—	—	—	Neg.
14548	5	4	1	4	2	Mod. Pos.	+	+	+	Pos.
14580	6	—	—	—	—	Neg.	—	—	—	Neg.
14574	7	4	4	4	4	Strong Pos.	—	—	—	Neg.
14588	8	1	—	±	—	Doubt. Weak Pos.	—	—	—	Neg.
14559	9	±	—	—	—	Neg.	—	—	—	Neg.
14578	10	—	—	—	—	Neg.	—	—	—	Neg.
14595	11	4	4	4	4	Strong Pos.	+	+	+	Pos.
14546	12	4	3	4	3	Mod. Pos.	+	+	+	Pos.
14555	13	4	±	4	±	Mod. Pos.	—	—	—	Neg.
14568	14	—	—	—	—	Neg.	—	—	—	Neg.
0208	15	—	—	—	—	Neg. Doubt.	—	—	—	Neg.

No. of Specimen.		LAB. E. G. pig heart antigen.	LAB. E. Human heart antigen.	LAB. E. State antigen.	LAB. E. Report.	LAB. F. State antigen.	LAB. F. Chol. antigen.	LAB. F. Control.	LAB. F. Report.
14566	1	0	+	+	Strong Pos.	4	4	— ?	Strong Pos.
14585	2	—	—	—	Neg.	—	—	—	Neg.
14565	3	+	0	+	Strong Pos.	4	4	—	Strong Pos.
14583	4	—	0	—	Neg.	4	3	—	Mod. Pos.
14548	5	W +	W +	—	Neg.	4	4	—	Strong Pos.
14580	6	—	—	—	Neg.	1—	—	—	Neg.
14574	7	0	+	+	Strong Pos.	4	4	4	Ac.
14588	8	—	W +	—	Neg.	4	—	—	Neg.
14559	9	—	—	—	Neg.	2—	—	—	Neg.
14578	10	—	—	—	Neg.	—?	—	—	Neg.
14595	11	+	0	+	Strong Pos.	4	4	4	Ac.
14546	12	0	+	+	Strong Pos.	4	4	—	Strong Pos.
14555	13	+	0	+	Strong Pos.	4 3	—	—	Mod. Pos.
14568	14	—	—	—	Neg.	2	—	—	Neg.
0208	15	—	—	—	Neg.	—	—	—	Neg.

0191	16	—	—	—	—	Neg.	—	—	—	Neg.	—	—	±	—	W. Pos.	M	—	—	Doubt.	—	0	—	Neg.	—	—	—	Neg.
															Doubt.														
0193	17	+	—	—	—	Neg.	—	—	—	Neg.	2	—	2	±	w. Pos.	—	—	—	Neg.	—	—	—	Neg.	2	—	—	Neg.
0233	18	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
															Weak														
0206	19	+	—	—	—	Neg.	+	—	—	Doubt.	3	±	3	±	Pos.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0242	20	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0243	21	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0197	22	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0216	23	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
						Strong		W							Mod.					m	m						Mod.
0214	24	+	+	+	+	Pos.	+	+	+	Pos.	4	3	4	3	Pos.	+	+	+	Pos.	+	+	+	Pos.	1	2	—	Pos.
						Strong		m							Strong												Strong
0191	25	+	+	+	+	Pos.	+	+	+	Pos.	4	4	4	4	Pos.	+	+	+	Pos.	+	+	+	Pos.	1	1	—	Pos.
0238	26	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0244	27	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0236	28	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0234	29	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
						Strong									Strong												Strong
0382	30	+	+	+	+	Pos.	+	+	+	Pos.	4	4	4	4	Pos.	+	+	+	Pos.	+	+	+	Pos.	1	1	—	Pos.
0386	31	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
						Mod.									Strong	w	m	m									Strong
0384	32	+	+	—	+	Pos.	+	+	+	Pos.	4	4	4	4	Pos.	+	+	+	Doubt.	+	+	+	Pos.	1	1	—	Pos.
0394	33	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0385	34	—	—	—	—	Neg.	±	—	—	Doubt.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0383	35	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
							m																				
0398	36	—	—	—	—	Neg.	+	—	—	Doubt.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	1	—	—	Neg.
0410	37	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.				Neg.
						Mod.				Mod.					Mod.												Doubt. Weak
0389	38	+	±	—	+	Pos.	+	—	+	Pos.	4	2	4	±	Pos.	—	—	—	Neg.	+	—	—	Doubt.	1	1	—	Pos.
0396	39	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0388	40	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
0415	41	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.
															Mod.												
0390	42	—	—	—	—	Neg.	+	—	—	Doubt.	3	1	3	1	Pos.	—	—	—	Neg.	—	—	—	Neg.	3	—	—	Neg.
0411	43	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	—	Neg.	—	—	—	Neg.	—	—	—	Neg.	2	—	—	Neg.

HISTORIES.

1. (14566)—Man, chancre twenty-five years ago. Treated for five weeks. Positive Wassermann.

2. (14585)—Janitor, sixty-six years old, who states there is no history of gonorrhoea or chancre. Negative clinically. Negative Wassermann. Diagnosis, flat-foot.

3. (14565)—Chancre sixteen years ago. Treated for one and a half years. Has had more than seventeen arsphenamines in the last three years, together with mercury and iodides. Previous Wassermanns—positive, doubtful, doubtful, negative, positive, positive. Diagnosis, syphilis with tabetic symptoms.

4. (14583)—Jewish woman of twenty-seven with a diagnosis of tendon strain and no history of syphilis. Negative clinically. Negative Wassermann. Diagnosis, tendon strain.

5. (14548)—Storekeeper, forty-eight years old, denying chancre and other symptoms referable to syphilis and giving history of tuberculosis for four and a half years, now inactive. Three positive Wassermanns followed by a doubtful and later a positive. During the course of these Wassermann tests has had at least twelve arsphenamines covering a period of three months. Diagnosis, not stated, but patient is now being given syphilitic treatment.

6. (14580)—Girl of eleven, whose parents are syphilitic. Three negative Wassermanns for a period of three months. Diagnosis, the Wassermann tests taken to determine the presence of syphilis on the basis of parentage.

7. (14574)—Girl of eighteen years without stigmata of syphilis, showing ulcerated areas over the buttocks and over the arms, which are of questionable origin. Tuberculosis considered. Diagnosis, question of lupus.

8. (14588)—Married woman of twenty-four without history of syphilis. Wassermann negative. Diagnosis deferred.

9. (14559)—A married Greek woman of thirty-two who has been treated for syphilis here since 1916, having had a lot of salvarsan, mercury and iodides. Seven Wassermann reactions, all negative. Diagnosis, treated syphilis.

10. (14578)—Jewish woman of fifty without history of syphilis and a clinical diagnosis of torticollis. Wassermann negative.

11. (14595)—Child of syphilitic mother. Two positive Wassermanns. Amount of treatment prior to Wassermann tests not shown in the record.

12. (14546)—Jewish widow thirty years of age with a history of two miscarriages. Positive Wassermann in New York and two injections of arsphenamines. Gives no history of primary or secondary lesions. Wassermann positive.

13. (14555)—Married man of forty-four, infected sixteen years ago. Negative Wassermann, doubtful Wassermann, lumbar puncture spinal fluid positive Wassermann, cells twenty seven, positive gold sol. reaction, doubtful Wassermann, negative Wassermann, two positive Wassermanns, negative Wassermann. Had had thirty or forty arsphenamines. Diagnosis, syphilis; tabo-paresis.

14. (14568)—Married American porter, forty years of age, treated for gonorrhoea. At present has acne. Wassermann negative.

15. (208)—Married Jewess, thirty years of age, without symptoms or physical examination of syphilis. Wassermann negative. Diagnosis deferred.

16. (191)—Married female, Portuguese, twenty years of age, with periostitis of the radius and enlarged epitrochlears, who has had six doses of salvarsan at the Boston Dispensary. Wassermann doubtful. Diagnosis, treated syphilis.

17. (193)—Italian farm hand, seventy years of age, without history or symptoms of syphilis. Wassermann negative. Diagnosis, epithelioma of the cheek.

18. (233)—Lithuanian married woman, thirty-nine years of age, who has had two miscarriages, but without any other symptoms referable to syphilis. Wassermann negative. Diagnosis deferred.

19. (206)—Italian bricklayer, forty-eight years of age, who comes with a history of having been treated for syphilis in Hartford four years ago. No physical examination taken. Wassermann negative.

20. (242)—Married woman of twenty-five, has had a medical examination; no history nor clinical evidence of syphilis. Wassermann negative. Diagnosis, psychasthenia.

21. (243)—Married Italian woman, twenty-three years of age, without history or clinical evidence of syphilis. Wassermann negative. Diagnosis, chronic pharyngitis, question of proctitis.

22. (197)—Female, thirty-eight years of age, with a history of syphilis dating back as late as seven years, who has had numerous doubtful and a few negative Wassermanns, and who has had a lot of anti-syphilitic treatment, including arsphenamines. Diagnosis, treated syphilis.

23. (216)—American, thirty-nine years of age, complaining of a rash of four days' duration; also presents a penile sore of four days' duration; dark field shows no pallida. No previous evidence of syphilis. Wasserman negative. Diagnosis deferred.

24. (214)—Married American Negress, twenty-three years of age, with a history of primary seven years ago. Five positive Wassermanns; large amount of syphilitic treatment. Diagnosis, treated syphilis.

25. (194)—Fireman, twenty-eight years of age, with a history of chancre a year ago. Amount of treatment not indicated on the record. Wassermann positive. Diagnosis, treated syphilis.

26. (238)—Married Irish woman, thirty-eight years of age, without history or clinical evidence of syphilis and with a diagnosis of sciatica. Wassermann negative.

27. (244)—Single machinist, twenty-four years of age, without history or clinical evidence of syphilis. Wassermann negative.

28. (236)—Married tailor, fifty-one years of age, without history or clinical evidence of syphilis, but with keratosis. Wassermann negative.

29. (234)—Married woman, forty-seven years of age, without history or clinical evidence of syphilis, presenting arteriosclerosis and associated conditions. Wassermann negative.

30. (382)—Teamster, twenty-six years of age, with a history of syphilis and three injections of arsphenamine. Positive Wassermann.

31. (386)—Single Italian, thirty-one years of age, with a history of syphilis nine years ago, who has had a large amount of arsphenamine and mercury, but no positive Wassermann since 1920. Wassermann negative.

32. (384)—married woman, sixty-one years of age, whose husband died of shock at forty-eight, who has had eight positive Wassermanns in the last two years and intensive treatment with arsphenamine and mercury. Diagnosis, treated syphilis. Wassermann doubtful.

33. (394)—Married teamster, thirty-eight years of age, without history or physical signs of syphilis; has boils. Wassermann negative.

34. (385)—Telephone operator, twenty-one years of age, with a history of syphilis five years ago and treatment; has had no positive Wassermanns in the last two years. Diagnosis, treated syphilis. Wassermann negative.

35. (383)—Negro, navy yard helper, nineteen years of age; has had gonorrhoea, but no history of syphilis. At present has scabies. Wassermann negative.

36. (398)—Italian married woman, thirty years of age, without history or symptoms of syphilis. Diagnosis, rheumatism. Wassermann negative.

37. (410)—Married teamster, fifty-six years of age, without history or clinical evidence of syphilis; now suffering with obesity and hypertension. Wassermann negative.

38. (389)—Italian barber with a history of syphilis and six positive Wassermanns and three negative Wassermanns.

39. (396)—Married Canadian woman, forty-two years of age, without history or clinical evidence of syphilis. Diagnosis, scabies. Wassermann negative.

40. (388)—Married Canadian woman, twenty years of age, without history or clinical evidence of syphilis. Diagnosis not given. Wassermann negative.

41. (415)—Jewish housewife, forty-four years of age, without history or clinical evidence of syphilis; suffering from obesity and constipation. Wassermann negative.

42. (390)—Married Jewess, twenty-nine years of age. Has husband and one baby with positive Wassermanns; she has had intensive treatment with arsphenamine and mercury; several positive Wassermanns, none positive, however, since 1920.

43. (411)—Salesgirl, sixteen years of age, without history or clinical evidence of syphilis, but who has neurasthenia. Wassermann negative.

Results.—Out of a total of 258 tests there are, then, but six flat disagreements, or 2.3 per cent., all but one of which are on cases of treated syphilis.

There are eleven cases (4, 6, 8, 9, 14, 16, 17, 19, 34, 36 and 42) in which one or more workers noted a tendency towards false positive results with the use of cholesterinized antigens, especially the State antigen, but in most instances there was sufficient evidence from other antigens to disregard these findings or to qualify them to the extent of giving a doubtful or negative report.

Acetone insoluble antigen with .1 cc. serum tends to give false negatives. (Cases 3, 5, 12, 13, 32 and 38.) With .4 cc. serum this is largely corrected. (Cases 3, 5, 12, 32 and 38.)

It is interesting to note how much closer readings are given with cholesterinized antigens when the two doses of serum, .1 and .05, are used as by Laboratory C.

On the whole, the tests indicate a high degree of accuracy in diagnosis, and strong agreement among different workers with the same specimens.

(To be continued.)

Current Literature Department.

ABSTRACTORS.

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CANCER OF THE PROSTATE: A COMPARISON OF RESULTS OBTAINED BY RADIUM AND SURGICAL TREATMENT.

BUMPUS, H. C. (*Surgery, Gynecology and Obstetrics*, August, 1922), writes as follows:

The results obtained thus far by radium in the treatment of cancer of the prostate are inferior to those obtained by surgery.

The new methods of radium application indicate that in the future the results of the two methods will be the same.

Partial prostatectomy in cases of carcinoma occasionally proves to be a curative rather than a palliative procedure.

A combination of radium and surgery offers the best results. [E. H. R.]

Congenital Porphyrinuria, with Hydroa Estivale and Pink Teeth.

Mackey and Garrod (*Quarterly Journ. of Med.*, July, 1922) report a case of this rare and interesting anomaly, and discuss the literature. The patient, a boy of six, passed red urine immediately after birth, and began to suffer from hydroa at the age of three months. (Hydroa estivale characterized by a bullous eruption occurring in the warm seasons on parts exposed to light, and leaving scars.) The association of porphyrinuria with hydroa has been noted repeatedly, and it has been shown that the injection of porphyrin renders the skin highly sensitive to light. It should be noted, however, that not all cases of hydroa have shown porphyrinuria.

Fischer showed that in porphyrinuria there is also porphyrin in the feces, though of a somewhat different chemical formula from uroporphyrin, both of which, moreover, are different in formula from artificial hematoporphyrin, though all three give very similar spectroscopic bands. Mackey and Garrod were able to confirm these results.

The occurrence of a deep brown pigmentation of the bones has been noted in several cases, but the authors are the first to report pigmentation of the crowns of the teeth, which were of a rosy pink color during infancy, changing later to deep brown.

They follow Gunther's classification of porphyrinuria into four classes—(1) acute toxic, following the use of trional or sulphonal, (2) acute, (3) chronic acquired, and (4) chronic congenital.

Although the origin of porphyrin from blood pigment seems certain, no signs of excessive blood destruction are found in the reported cases.

[W. T.]

Report of the American Social Hygiene Association, August 15, 1922, on Venereal Disease Control.

Figures for industrial policy-holders of the Metropolitan Life Insurance Company during the last four years show a decrease in mortality rates for the venereal diseases. Since 1917 the rate for syphilis locomotor ataxia, and general paralysis of the insane has declined 21 per cent., the figure for 1921 being 13.1 per 100,000, as compared with 16.6 in the earlier year. It is interesting to note that while there was a considerable increase each year from 1911 to 1917, there has been a sharp drop since then. This change is even more significant in view of the fact that reporting is more accurate on death certificates. The decline, therefore, has been accomplished in spite of better reporting. The decline seems to be most decided in the case of syphilis rather than for locomotor ataxia. The figures indicate that the difference between the rates for 1917 and for 1921 is chiefly accounted for by the lowering of the rates in the age period between 25 and 55 years. This improvement may be due to improved methods of treating syphilis as well as to the various measures of control established during the war by private agencies acting in coöperation with the government.

Arsenical Preparations in the Treatment of Syphilis.

In the *International Journal of Surgery*, Vol. xxxv, No. 6, June, 1922, Abr. L. Wolbarst states that a recent investigation made by a committee of German physicians showed that the chance of fatal result in a properly given injection is about 1 in 13,000 with old salvarsan, 1 in 20,000 with sodium salvarsan, and 1 in 162,800 with neosalvarsan, an average of one fatality in 56,445 injections. Many physicians today believe that in the various refining processes, salvarsan has lost in anti-luetic potency. On the other hand, some believe that the drug has not lost any of its power, but that the treponema has developed strains that are resistant to arsenic and therefore to arsphenamin medication. Obviously it is impossible to offer positive proof on either side of this question, but the fact remains that we do not get the results with one injection of arsphenamin today that a similar dosage effected in 1910 or 1911. Of the six methods of injection, *i.e.*, the intravenous, intramuscular, subcutaneous, oral, rectal, and intraspinous, the intravenous is best for routine therapy. It has been the practice of the author for the last seven or eight years to protect his patients against possible recurrence in such cases by advising a form of "insurance" that has been very satisfactory in his experience. The "insurance" consists of neoarsphenamin injection administered three or four times a year, especially in cases in which there is a fear of neuro-recurrence. The author states that there has not been a single recurrence of any kind in any patient who has taken this "insurance" systematically. In concluding, Dr. Wolbarst reminds us that the two remedies, arsphenamin and mercury, are powerful poisons and that caution must be taken to consider possible susceptibility or idiosyncrasy.

Malignant Neoplasms of the Extrahepatic Biliary Ducts.

Renshaw (*Ann. of Surg.*, Aug., 1922) writes as follows:

Malignancy of the bile ducts, while less common than that of the gall-bladder, is not uncommon. The ratio in a series of 104 cases of malignancy of the biliary ducts and gall-bladder was one to four.

Carcinoma is the most common type of neoplasm found.

Gallstones would seem to be of greater etiologic importance than is generally considered.

Males and females are affected in the ratio of about two to one.

About two-thirds of the cases occur between the ages of 50 and 70 years.

A diagnosis of malignancy of the ducts is uncertain.

After a diagnosis of obstructive jaundice has been made, exploration is generally advisable.

From the standpoint of slowness of growth and rarity of metastasis, surgical treatment should be favorable.

Early treatment of disease of the gall-bladder may occasionally prevent the development of malignancy.

Operation on patients with jaundice carries a high mortality.

[E. H. R.]

The Surgical Value of the Estimation of the Bile Pigmentation (Icterus Index) of the Blood Serum.

Stetten (*Ann. of Surg.*, Aug., 1922) concludes that the icterus index determination is of value from the surgical standpoint:

1. As an indicator of the absence or presence of jaundice and as an aid to diagnosis in doubtful cases, being more dependable and delicate than the inspection of the skin and sclera, or the examination of the urine.

2. As a method of accurately estimating, in frank icterus, the pre- or post-operative increase or decrease in the degree of jaundice with the accompanying progression or recession of the disease.

3. As a guide in differential diagnosis, in the placing of operative indications and in prognosis, in cases of outspoken jaundice, by means of the study of the fluctuations in the index figures.

[E. H. R.]

Extirpation of One Adrenal Gland for the Cure of Epilepsy.

Fischer (*Ann. of Surg.*, Aug., 1922), basing his operative work on the assumption that the convulsive seizures in epilepsy are the expression of excessive labor performed by the striated muscles of the body, and the fact that in disease or absence of the adrenal gland there is accompanying muscular weakness, has experimentally removed the left adrenal gland in cases of epilepsy, with considerable improvement in some cases. He describes the technic of the operation and reports a number of cases.

Experimental Reconstruction of the Esophagus with Autogenous Fascia Lata Transplants.

Allen (*Ann. of Surg.*, Aug., 1922), from his series of experiments, draws the following conclusions:

1. That it is possible to repair defects in the wall of the cervical esophagus by the use of autogenous fascia lata transplants.

2. That the stratified epithelium lining the esophagus in the dog possesses the power of regeneration to a degree sufficient to enable it to bridge over defects which have been filled in with fascia lata transplants.

3. That infection along the cervical portion of the esophagus may produce a mediastinitis or a mediastinitis associated with a general empyema.

4. That this infection is accompanied by leakage of the contents of the esophagus.

5. That silk or linen should not be used for suturing the mucosa.

6. That stenosis may or may not be found after repair of defects in the wall of the esophagus with fascia lata transplants.

[E. H. R.]

Perforation of Duodenal Ulcer Following Gastro-Enterostomy.

Douglas (*Ann. of Surg.*, Aug., 1922) reports a case in which this accident happened, and finds after a careful search of the literature that the total number of cases so far reported is only 29. He speaks briefly of the type of cases in which this thing occurs and reports by means of a schematic chart the results in all of the cases found in the literature.

[E. H. R.]

Lymphosarcoma of the Intestine.

DeNoyelles (*Ann. of Surg.*, Aug., 1922) summarizes his paper as follows:

1. Two cases of lymphosarcoma of the intestine are described, one of tumor of the jejunum, the other of the ileum. In one instance the tumor was a diffuse infiltration of the intestinal wall, an annular type of growth. In the other case a lymphosarcomatous polyp was found which gave rise to an intussusception.

2. The microscopic picture leaves much speculation as to the origin of the tumor cell, but in these two cases the predominant cell is one which resembles a great deal the transitional large mononuclear cell of the blood.

3. Lymphosarcoma of the intestinal tract is difficult of clinical diagnosis, the signs being simply those of malignancy, with partial obstruction being rather constantly present. X-ray examination was of no help in these two cases.

4. Treatment consists of radical removal of the primary growth with as much of the metastases as is possible. Improved methods of radium application might be a valuable therapeutic adjunct.

5. Chronic irritation, possibly a specific toxin, may play an important rôle in the genesis of lymphosarcoma. The histology of infectious granulomata of the intestine often simulates this tumor. Perhaps lymphosarcoma is only one of the many bizarre late pictures of lesions which were at one time of the nature of Hodgkin's disease or lymphoblastic or lymphocytic aleukemia.

[E. H. R.]

Primary Tumors of the Urethra.

Scholl and Braasch (*Ann. of Surg.*, Aug., 1922) write as follows:

Malignant tumors of the male urethra often develop following long-standing urethral infections. Primary tumors are extremely rare both in the male and female. In the female they are generally located in the anterior urethra and tend to grow outward, away from the bladder.

Most malignant tumors of the urethra are squamous-cell growths. They are highly malignant, but are well walled off by fibrous tissue and lymphocytic infiltrations. They tend to remain limited to the local condition and to the regional lymph glands, and usually respond readily to radium treatment.

Three cases of epithelioma of the female urethra and one of the male urethra are reported from the Mayo Clinic.

Benign solid tumors are only rarely seen in the urethra. The majority of these belong to the group of fibromyomas. One case of fibroma of the female urethra is reported.

[E. H. R.]

Plastic Surgery of the Face, Including Treatment of Complete Double Harelip.

Highsmith and Veau (*Ann. of Surg.*, Aug., 1922) present two very valuable articles on this subject, profusely illustrated with excellent drawings showing technic. Veau's drawings are of especial interest and value. These two articles form a valuable symposium on this subject.

[E. H. R.]

Results of Treatment in Forty-Eight Cases of Sciatica.

Ott (*Ann. of Surg.*, Aug., 1922) states that in 48 cases of sciatica in which no definite causative factor could be found, repeated epidural injections, combined with the removal of possible foci of infection in a large percentage, resulted in permanent cure in 29 per cent., and permanent amelioration of symptoms so that the patient was able to continue his occupation with a fair degree of comfort in 37 per cent.; in the remaining 34 per cent. no permanent beneficial results were obtained.

[E. H. R.]

Glucose Tolerance and its Value in Diagnosis.

John (*Jour. Metabolic Research*, i, 497, April, 1922; actually received July 29) presents 20 tables and 111 charts and a text discussion sufficiently condensed and crisp to be good reading. The most stimulating statements are these:

Following the forced fluid intake of the test (about a quart in about four hours), urine volume was smaller than the intake in about 50 per cent. of the non-diabetics, but in as many as 75 per cent. of the diabetics. His probable explanation was that the persistent hyperglycemia "holds" the water.

The time of the maximal blood sugar was in 49 per cent. of the diabetics at two hours, and at one

hour in 33 per cent.; whereas it was at the half-hour in 51 per cent. of the non-diabetics, and at one hour in 37 per cent.

"The mere peak . . . appears to have little or no significance. The most important point is the length of time which it takes for the reëstablishment of the normal level. After the ingestion of 100 gm. glucose, if the curve comes back to normal inside of three hours, the individual is considered non-diabetic." (Much the same contention has been made by Hamman, but so far without weaning attention from the peak.)

Glycosuria and hyperglycemia are independent. In 715 observations 14 per cent. showed glycosuria despite normal glycemia, while in 18 per cent. glycosuria was not manifested in the presence of hyperglycemia. "Thus the percentage of error in diagnosis when a urine examination alone is made may be 32 per cent."

"There is no such thing as a fixed normal renal threshold, usually placed at 170 mg. per 100 c.c." (In connection with this statement one should not overlook Folin and Berglund's recent evidence in support of the renal threshold.)

[H. G.]

AN IMPROVED ALIMENTARY GLUCOSE TOLERANCE TEST.

BEELER, BRYAN, CATHCART and FITZ (*Jour. Metabolic Research*, i, 549, April, 1922) propose "a simple modification" of the well-known 100 g. glucose tolerance test. One hour after ingestion, the stomach was emptied with a Rehfuss tube, the percentage of sugar recovered was titrated and also the blood hemoglobin was determined. With these figures two corrections were made of the blood sugar values. (This study seems, even to a believer in the utility of more mathematics in medicine, rather profound and stimulating than convincing. In the forest of figures one seems to lose sight of the evidence in the literature that in a given individual much the same glycemic curve is obtained, whether the dose of glucose be 20 grams or 200, *i.e.*, the amount absorbed in surprisingly immaterial. From table 3 one sees that the fraction of glucose recovered from the stomach varied in 21 cases from a trace to 63 per cent. Or one can derive the average of 31 per cent., that is, the average subject absorbed 69 g. glucose. Only two cases absorbed less than 22 g., hence only in these should the reviewer expect the new technic to be helpful. Despite these reservations, the method merits attention, since the accuracy aimed at, and claimed, will when confirmed be a most valuable asset.)

[H. G.]

CLINICAL OBSERVATIONS ON TREATMENT AND PROGRESS IN DIABETES.

FREDERICK M. ALLEN and JAMES W. SHERRILL (*Jour. Metab. Research*, March, 1922, i, page 377) write:

This paper is an exhaustive statistical analysis, the first to come from this clinic, from which most of the material so far has been in the nature of studies on individual animals and men. The article is too long to do more than pick out certain points. The authors offer a plan which they suggest may be adopted by others for the sake of comparison. The principle of general agreement on a method of statistics is certainly important, while many of the arguments detailed by these writers differ from their predecessors.

They say that patients coming to obtain advice on a single occasion are ordinarily not taken under treatment by the consultant, nor does he undertake responsibility for the future,—such cases, these authors exclude. It may be interesting to compare with this review the recent statement by Joslin: "Statistics based on selected series cases are plausible but unsatisfactory. Though a diabetic patient is seen but once, an influence should be exerted to guard that patient from coma or gangrene, and to state all those possible legitimate hopes and prospects by which the patient's courage may be and often is maintained." Furthermore, the reviewer would urge that an expert's advice on a single occasion may well be worth more to the patient than uninformed advice on many occasions.

They assert: "With an insignificant number of exceptions these patients had mild diabetes, as is likely to be the case with those who request merely an incidental opinion. There is a reasonable expectation that all but a very few of them are alive, and the inclusion of this group would certainly make the general statistics appear much more favorable." The reviewer ventures the protests that mild diabetes very often becomes severe and also that assumptions as to the viability of untraced cases often prove later, after the cases have been traced, to have been surprisingly mistaken.

"Any deaths that occur shortly after consultation on account of complications then existing have been included in the following tables." (Agreed.)

"The physician is called to see whether patients . . . with dangerous complications such as coma or infections already present. As these complications have not developed under the diabetic treatment, they are not a test of the treatment of diabetes as such." (Omission of patients in actual coma, *i.e.*, unconscious, seems to the reviewer legitimate. But patients with infections should, some of us believe, not be excluded, in view of both the great variability of the severity of the infection when first seen, and also the good outcome in some diabetics with even severe carbuncles or gangrene.)

Allen and Sherrill most justly observe that "some former opinions of the unreliability of diabetics are untrue for the majority will follow diet conscientiously," when properly instructed. (At the same time, regarding their exclusion of patients who are considered unfaithful to treatment, it seems important to remember the difficulty of estimating the exact amount of foods eaten, the tendency of most patients, after they go home, to estimate rather than weigh their food, and the resulting lapses, as evidenced by the frequency with which patients return and are found on careful observation to be no more severe than previously; that is, they became sugar free when put on their same old diet, actually mensured instead of guessed. Therefore, it seems to us that patients should not be excluded on this ground of infidelity to treatment, although it certainly is most instructive to examine the separate tabulations by these authors).

Finally, their critiques of the work of Petren and of Newburgh and Marsh deserve attentive reading.

[H. G.]

INTESTINAL ADENOMAS OF ENDOMETRIAL TYPE. THEIR IMPORTANCE AND THEIR RELATION TO OVARIAN HEMATOMAS OF ENDOMETRIAL TYPE (PERFORATING HEMORRHAGIC CYSTS OF THE OVARY).

SAMPSON, J. A. (*Archives of Surgery*, Sept., 1922) presents a 73-page article on this subject profusely illustrated with excellent drawings explaining the text, and draws the following conclusions:

Intestinal adenomas of endometrial type are implantation growths, similar in many ways to those arising from a rupture or perforation of a malignant (carcinomatous) ovarian cyst. Fortunately, their distribution is usually not so great; they are not so invasive; they grow more slowly and spread less rapidly. They often take part in menstruation and, therefore, may combine this function with that of invasion. These implantations may spread by growth, by continuity and, possibly, by further implantations arising from the escape of menstrual blood from them, carrying some of the overlying epithelium with it.

The portions of the intestinal tract most frequently involved are those usually found in the pelvis; as the sigmoid, rectum, appendix and terminal loop of the ileum. In the twelve cases reported in this series, the rectum and the sigmoid, including the epiploic appendages, and the mesentery of the latter were involved in eight, the appendix in four, and the small intestine in two. In the eight instances of implantations on the sigmoid and rectum, an ovarian hematoma, with evidence of a previous perforation, was situated in the left ovary in six; while in the four instances of implantation on the appendix, a similar hematoma was situated in the right ovary in all four. This suggests that while the intestinal implantations from either ovary may be general in their pelvic distribution, the portion of the intestinal tract normally situated near the ovary is more likely to be involved.

The character of the intestinal lesions varies greatly, and they may be grouped as follows:

1. Surface and superficial implantations.

2. Implantations developing between adherent folds of peritoneum and other adherent structures (pocketed implantations), best seen in the cul-de-sac between the posterior wall of the uterus and the rectum, which are often fused together. The surface of the adherent parts, which are exposed after separating them, often have a characteristic "pitted" appearance due to the exposure of endometrial tissue in the pockets between the adhesions or in the deeper tissues of the organ involved.

3. The deep invasion of the underlying structure or organ: The tubules worm their way into the tissues of the intestine; and this is often associated with a marked hypertrophy of the surrounding connective tissue and muscle. Many varieties of endometrial tissue and its derivatives may be found, including glands and tubules with and without a characteristic endometrial stroma, dilated tubules, miniature uterine cavities, hematomas and the invasion of lymph vessels by endometrial polyps.

As an implantation carcinoma these implantations may occur on any part of the intestine; its peritoneal surface, its mesentery and especially the epiploic appendages of the sigmoid. The latter may serve as a portal of entry to the deeper tissues of the wall of the intestine.

The intestinal lesions are often only of histologic interest and do not give rise to any symptoms. In other cases the lumen of the intestine is encroached upon by indentations, by hypertrophy of its walls, and by hematomas; the latter may become larger during menstruation so that symptoms of obstruction may only occur or be more marked at that time.

The operative treatment of intestinal adenoma of endometrial type is at present an unsettled problem. My own reaction, at present, on finding what appears to be an intestinal lesion is to examine carefully the surface of the intestine for dots and areas due to hemorrhage, to look for other implantations in the pelvis, and most important of all to examine carefully the ovaries for any sign of a hematoma with evidence of a previous perforation, bearing in mind that it may be very small and is most frequently situated on the lateral or the under surface of the ovary. If the evidence found indicates an adenoma of endometrial type I do not disturb the intestinal lesion, except as it may be easily removed for histologic study, but deal with the pelvic organs as their condition requires. Conservative ovarian surgery in these cases leaves behind a possible source of more implantations, and apparently retained ovarian tissue may sometimes stimulate the growth of the implantations which have not been removed.

Intestinal adenoma of endometrial type is a common condition occurring in more than one half of the cases with ectopic endometrial adenomas and the latter may be found in from 10 to 20 per cent. of women between 30 years of age and the menopause, who require an abdominal operation for some disease of the pelvic organs. On account of its frequency, pathologic interest and clinical importance, it deserves a greater recognition than has been accorded it in the past.

[E. H. R.]

The Autotransplantation of Endometrial Tissue in the Rabbit.

Jacobson, V. C. (*Archives of Surgery*, Sept., 1922) writes as follows:

It has been demonstrated in this series of experiments that endometrial tissue transplanted into the ovary and pelvic fat of the same animal will grow for as long as seventy days and probably much longer. Adenoma-like growths and multilocular cysts, which, histologically, show much similarity to "ovarian" cysts-adenomas of women, are produced. Under the influence of pregnancy, a more rapid epithelial growth occurs, with the production of a papillary "cystadenoma" which has some of the characteristics of a malignant growth. All of these observations are in agreement with Sampson's explanation of adenomas of the endometrial type which are found in the ovary, in the cul-de-sac, adherent to and invading the appendix, intestine, rectum, oviduct and uterus, and which apparently arise from ectopic epithelium discharged into the pelvis through the fimbriated end of the oviduct, this epithelium coming either from the uterus or the oviduct or from both.

[E. H. R.]

Preoperative Treatment of Malignant Tumors of the Bladder by Radium.

Scholl, A. J., and Braasch, W. F. (*Archives of Surgery*, Sept., 1922).—These authors write as follows:

Radium rays administered in small amounts definitely destroy the proliferative power of living cells. The activity of the cell is lessened, and it passes through a quiescent stage from which it gradually recovers as the effects of the radium wear off. In many cases, there is destruction of the nuclei which is accompanied by an atypical cell growth and vascularization, and later by fibrosis.

At the Mayo Clinic, the flat, infiltrating, rapidly recurring type of bladder tumor is exposed to radium before operation in an effort to reduce the activity of the malignant cells and prevent operative transplants and early postoperative recurrences. Tubes of radium emanation are inserted through the direct cystoscope into the substance of the tumor, which later is removed surgically. Specimens for histologic study are removed from the tumor before irradiation, and their histologic structure is later compared with that of the surgically removed area. In the majority of cases, there is a marked reduction in the size of the tumor, with a widespread and constricting fibrosis. [E. H. R.]

Primary Squamous-Cell Carcinoma of the Kidney as a Sequel of Renal Calculi.

Wells, H. G. (*Archives of Surgery*, Sept., 1922) writes as follows:

The formation of keratinizing squamous-cell carcinoma in the renal pelvis is a rare occurrence. In the case reported, which is of this sort, the metaplasia of the transitional epithelium to the squamous form was apparently the result of chronic irritation from renal concretions. [E. H. R.]

Urethroscopic Findings in Functional Disorders of the Genito-Urinary Tract.

Wolbarst, A. L. (*Journal of Urology*, March, 1922) writes:

Fifty consecutive cases were selected, having well-defined clinical symptoms, which can be placed in one of the three groups just mentioned.

The conclusions drawn are:

1. Functional disturbances of the genito-urinary tract are invariably associated with pathologic lesions in the posterior urethra.

2. These lesions usually involve both the verumontanum and the urethral canal behind it, occasionally also the internal sphincter.

3. When the urine is hyperacid, urinary frequency is likely to be the predominating symptom.

4. In 64% of cases, in this series, there was no history of previous gonococcal infection.

5. Excessive masturbation, prolonged sexual excitement without gratification, and withdrawal (coitus interruptus) practiced for long periods seem to be the etiologic factors in the nongonorrheal cases.

6. Whatever the etiologic factor may be, the resulting functional disturbance does not follow any specified type; and there is no apparent correlation between the clinical phenomena and the urethroscopic picture.

7. Sexual neurasthenia, so called, is a misnomer; it should be considered an aggregation of more or less serious disorders involving one or more functions of the genito-urinary tract and associated with definite pathologic lesions in the prostate and seminal vesicles and reflected in the urethroscopic picture of the verumontanum and posterior urethra.

8. Every case of functional disorder referable to the genito-urinary tract should be subjected to thorough study and examination through the urethroscope. [B. D. W.]

The Use of the High Frequency Current in the Treatment of Lesions of the Deep Urethra.

Young, H. McClure (*Journal of Urology*, March, 1922), writes:

The lesions of the urethra posterior to the cut-off muscle are:

1. An inflammatory overgrowth of the mucous membrane which may take the form, (a) of a generalized hypertrophy of the mucosa throwing it into rather coarse folds and rugae, or (b) the more localized hypertrophies known as polyps. Often both conditions are present.

2. Granular areas, fairly well localized but not sharply outlined as a rule. In long-standing cases these may have undergone a rather exuberant proliferation, giving rise to a sort of tumor, a granuloma. Papillomata are very uncommon in the deep urethra.

3. Small sinuses running out of the deep urethra into the substance of the prostate are very common, and should always be carefully looked for. These can be lightly cauterized with a Bugbee fulgurating electrode.

Varicose veins sometimes occur in the deep urethra.

These lesions can be controlled by high frequency current applied with great accuracy under control of the eye.

The paper concludes with a method of fulgurating offending prostatic lobes. [B. D. W.]

Types of Nephritis Which Lead to Uremia.

Foster, Nellis B. (*Journal of Urology*, March, 1922), writes:

Confining ourselves strictly to facts, we have evidence at present only that uremia in any of its forms is a result of impaired renal function; this medicum of evidence is always procurable. Furthermore, that the degree of impairment is directly proportionate to the number of renal elements (tubule and glomerulus) that are damaged seems quite probable, although not established. We should find then the solution to our query concerning the uremia producing type of nephritis not in a type, but rather in a degree of severity, not a qualitative, but a quantitative relation. [B. D. W.]

Foreign Bodies in the Bladder.

Day, R. V. (*Journal of Urology*, March, 1922), writes:

A summary of the various methods of removing foreign bodies from the male bladder. The variety of foreign bodies found is,—chewing gum, paraffin, broken-off pencils, small irrigating nozzle, hairpins, and hatpins; any of the above may be more or less encrusted with urinary salts, depending on the length of time they have been in the bladder.

A small lithotrite, where the female blade has no fenestrum, but is cupped and so blunt that no injury is done to the bladder mucosa, is very satisfactory.

Employment of cystoscopic forceps through the operating cystoscope may be successful.

An oval-shaped stone was removed by the author, using a large-sized Braasch cystoscope, No. 25 Charriere. Through the catheter guide in the cystoscope was introduced an alligator forceps. [B. D. W.]

Atrophic Pyelonephritis.

Braasch, W. F. (*Journal of Urology*, April, 1922), writes:

Pyelonephritis is, as a rule, not regarded as a surgical disease of the kidney for two reasons: (1) acute infections usually resolve spontaneously, and (2) chronic infections are almost always bilateral and respond in greater or lesser degree to medical treatment. Unilateral pyelonephritis, which does not respond to medical treatment, becomes a surgical condition and usually demands nephrectomy.

Atrophic pyelonephritis is distinguishable from chronic bilateral pyelonephritis; in the former the urinary symptoms are less severe and are usually not progressive; the pain is unilateral and may be more severe and is frequently accompanied by evidences of acute renal infection.

Atrophic in contrast to bilateral pyelonephritis, the bladder is usually found on cystoscopy to be involved only to a moderate extent or not at all. The phenolsulphonephthalein test is of great clinical significance as it usually is markedly diminished on affected side and the other side will usually show increase. In bilateral the function is usually diminished on both sides.

The differential is pelvic reduplication—wide stricture of the lower ureter, chronic renal tuberculosis.

The etiology is probably a primary aseptic infarct.

Operation gives relief. In the 28 cases reported in this paper all but one was markedly relieved. [B. D. W.]

Concerning the Effect of Saline Purgatives on the Absorption and Excretion of Phenolsulphonephthalein.

Macht, David I. (*Journal of Urology*, April, 1922), writes:

In experiments on dogs the output of phenolsulphonephthalein is decreased by one-half, when a solution of sodium sulphate or a magnesium sulphate is administered at time of giving drug. The same experiment was repeated, but the dye was given intramuscularly rather than orally, and again the output was markedly retarded. Tests were then made on loops of intestines, jejunum, and the results showed the loop containing the saline purgative retained much greater quantity of dye.

The author then tried salines on himself and some colleagues and all showed retarded output when taking salines. It appears probable that osmotic phenomena and an increased concentration of the blood play the principal part.

The tests on man are few, and further experiments must be carried out as this is only a preliminary report. [B. D. W.]

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THE STUDY OF MATERNAL MORTALITY.

THE committee appointed for the purpose of studying the factors involved in maternal and infant mortality has been at work analyzing the returns filed at the State House. A questionnaire has been sent to every physician whose name appears on the death certificate, asking for information relating to the antenatal conditions and the circumstances attending maternal deaths.

It is gratifying to find that a large proportion of the physicians appealed to have shown a spirit of coöperation for which the societies represented on the committee should be thankful. There are, however, some who have not taken the trouble to reply and the committee would call the attention of the profession to the importance of this study and the obligation which the profession of medicine imposes on its members to add to the common knowledge relating to the causes of death under investigation.

This study has not been prosecuted with the purpose of finding opportunities for criticising any practitioner, but rather to ascertain the reason for these casualties, if possible. Several eminent men have interpreted the facts as indicating lack of understanding of the basic principles of hygiene by the laity and failure to secure early medical supervision and assistance; others have felt that the practice of midwives has contributed to disasters in some localities, while still others suspect that meddlesome midwifery and resort to uncalled-for operations may have some influence.

It is generally conceded that the practice of obstetrics by well trained and judicious accoucheurs is securing better results than ever before in the history of medicine and since state registration is gradually eliminating the less well qualified doctors, the average service should be better. Some published statistics seem to indicate that we have passed the peak of relative mortality and there is hope that future records will demonstrate this expected improvement.

There is, however, a logical contention that the conditions of modern life do not, in some instances, fit women for the responsibilities of maternity and that because of impaired vitality there may be less resistance to sepsis and greater danger of toxemia among parturient and pregnant women.

It has been contended that the development of surgical technic and aseptic precautions have led to an undue dependence on some operative procedures. This may be an open question and call for some authoritative opinion, and although it is too early to speak definitely on this phase of obstetric practice, the rule adopted by some hospitals in requiring competent consultation before resort to major operations in obstetric cases, seems to indicate that the fear exists in some minds that enthusiastic operators need some restraining supervision.

These are all matters of concern to the medical profession and in order to arrive at logical conclusions, physicians should contribute the facts under observation. The Committee of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society, respectfully solicits the assistance of physicians in this state, in the study now being made.

THE PRACTICE OF MEDICINE BY THE CLERGY.

ACCORDING to Dr. Egbert H. Grandin of New York, a movement has been inaugurated for the purpose of legalizing an alleged method of curing disease by the laying on of hands according to the methods employed by Mr. Hickson.

The champion of this movement is the Bishop of New York. He is reported to have given Mr. Hickson every opportunity to demonstrate his methods when he, the Bishop, was Rector of Trinity Church. If this report is true it is time for the medical profession to put aside its conservative attitude and take the field in a campaign of opposition to any plan which seeks to deceive the people. Physicians have been reluctant to enter upon any controversy involving the application of religious faith in the cure of disease through mysticism, for physicians as a class share with the great majority of mankind

a profound respect for true religion and so far as religious teaching and practice are applied to the spiritual and moral nature, extend encouragement and support. But the profession as a body understanding the behavior of those diseases which have a recognized pathology, would resent the impious assumption that the operation of natural laws can be suspended by methods which appeal to the emotions rather than to reason. If it could be shown that the Deity is disposed to suspend the known laws of disease, physicians would forsake their arduous tasks and enter the orders of the Church, but experience has demonstrated that certain diseases are inexorable and do not respond in any great degree to the mental or moral attitude of the sufferer. It is, of course, generally conceded that functional conditions can be materially modified or a cure effected through changing the mental attitude. If this phase of treatment is recognized and given its proper application, the psychic effects of good counsel and the encouragement extended by a dominating personality have their proper places.

Some years ago, the movement in Boston which had for its objective the bettering of physical and mental disorders logically employed medicine as its coadjutor and whenever it was found that an organic disease was suspected a physician's advice was sought. This latter movement was misinterpreted and criticised. It did not seem to accomplish all that was expected of it by its supporters, although the motives were good and the practice free from unsound methods.

It is still in operation and is endorsed by physicians and patients. It is respectfully suggested that Dr. Grandin is in error in placing this local effort in the same class with the plan advocated by the Bishop of New York.

In distinction to the Boston movement many theories and practices relating to morbid condition which have been exploited from time to time, unless founded on scientific knowledge and applied by competent physicians have been abandoned. The hectic flush of over-enthusiasm has too often preceded dissolution.

The clergy will hold their position of influence so long as they deal with the problems of ethics and religion, but diseased minds, as well as bodies, must in the end be presided over by painstaking and competent physicians. The people must beware of false teachers, even though they are in high places.

PLOTTING DEATH RATES.

In the Public Health Reports for August 18, 1922, Professor George C. Whipple and Miss A. D. Hamblen present arguments for the use of semi-logarithmic charts for plotting death rates. The vertical scale is based on the logarithms of the numbers from 1 to 10, with subdivisions, and these repeat themselves, the distances between 1 and 10, 10 and 100, and so on, being equal, the horizontal scale is arithmetical, and therefore uniform. This plan is especially useful for long-time records, and the significance is more easily appreciated than when curves are shown on cross-section paper. Several illustrations are given, the interesting facts being that from 1851 to about 1890 the death rate in Massachusetts rose slowly from 18 to nearly 20 per 1000, then it began to go down, with some variations, until 1921, when it reached 12 per 1000.

The reason given for the change beginning with 1890 is the application of the science of bacteriology, for it was the employment of this science in water purification, sewage disposal, and the development and distribution of diphtheria antitoxin, and allied efforts, supplemented in about 1910 by pasteurization of milk, and other health measures, which may be regarded as the most important factor. Speaking of tuberculosis, the statement is made that "one may almost venture to predict its future death rate," for if the present decline continues, the death rate for this disease will be 38 in 1950, as compared with the present rate of 82 per 100,000.

Typhoid fever, diphtheria, scarlet fever, and infant mortality show an encouraging diminution. In contrast, the analyses show that the death rates from Bright's disease, cancer and organic heart diseases are steadily increasing. The mortality from measles and whooping cough has not diminished.

Several other matters of interest warrant careful study by persons interested in statistics. Such analytical presentations convey encouragement in some directions, and furnish incentives for study of those diseases that are baffling.

EDITORIAL NOTE.

In another column of this number of the JOURNAL appears the Program of Meetings of the Suffolk District Medical Society for 1922-23.

There will be an opportunity to hear some of the foremost medical men in this country. The subjects of the meetings are quite different from the subjects usually presented. Every member of Suffolk District owes it to himself, as well as to the Society, to attend as many of these meetings as possible.

NEWS ITEMS.

ANNOUNCEMENT OF DR. CHRISTIAN.—Dr. Henry A. Christian begs leave to announce that, having arranged to curtail the time devoted by him to teaching work in the Harvard Medical School, he will resume consultation work in internal medicine on October 1, 1922. Patients will be seen also by appointment in his office at

the Peter Bent Brigham Hospital, corner of Huntington Avenue and Francis Street, Boston. Patients requiring special study can be admitted to the Peter Bent Brigham Hospital for observation. Dr. Cyrus C. Sturgis will be associated in this work.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Sept. 9, 1922, the number of deaths reported was 166, against 161 last year, with a rate of 11.3 against 11.08 last year. There were 33 deaths under one year of age, against 26 last year.

The number of cases of principal reportable diseases were: Diphtheria, 38; scarlet fever, 9; measles, 8; whooping cough, 48; typhoid fever, 3; tuberculosis, 27.

Included in the above were the following cases of non-residents: diphtheria, 5; scarlet fever, 2; tuberculosis, 7.

Total deaths from these diseases were: diphtheria, 4; whooping cough, 2; tuberculosis, 12.

Included in the above were the following cases of non-residents: diphtheria, 1; whooping cough, 1; tuberculosis, 2.

EASTERN HAMPDEN MEDICAL ASSOCIATION.—The Association will hold its monthly meeting at the Springfield Academy of Medicine, October 5. Theme: "Spinal Puncture." Speakers: Drs. M. B. Hodskins, I. N. Kilburn, S. D. Davis, J. M. Birnie, and H. S. Cleveland.

BEVERLY HOSPITAL CLINIC.—Following is the program of the monthly clinic held at the Beverly Hospital on Tuesday, Sept. 19th, at 4 p. m.:

Specimens of extrauterine pregnancies.
Pancreatitis.
Appendicitis, acute.
Tumor of the lower abdomen, lipoma, retroperitoneal — weight 10 lbs.
Tumor of abdomen (in child); pre-operative diagnosis—retroperitoneal sarcoma.
Diabetic gangrene.
Intestinal obstruction.
Carcinoma of sigmoid.
Fracture of skull.
Fracture of skull.
Fracture of skull.
Fracture of skull.
Traumatic cerebral hemorrhage.

Miscellany.

WORCESTER DISTRICT MEDICAL SOCIETY.

THE first regular meeting of the Worcester District Medical Society was held in the rooms of the University Club, Worcester, September 13, at 8.15 P. M.

Dr. Geo. M. Albee read a paper on Classifying Our Cardiacs, a synopsis of which may be found below. The paper was discussed at length by Dr. A. S. Levine of Peter Bent Brigham Hospital, Boston, and by Drs. Stevens, Curran, Hurd, and others.

At the business meeting a committee was appointed consisting of Drs. Shannahan, R. J. Ward, Ellison, Hurd, and McKay, to consider the question of the adoption by the Society of the A. M. A. Caduceus for the members automobiles in place of the green cross now used so extensively by many cults.

It was voted to accept the invitation of the Worcester North District Society and meet with them in October, the date to be arranged later.

CLASSIFYING OUR CARDIACS.

PATIENTS who come to us complaining of shortness of breath, swelling of the legs, precordial pain, palpitation, cough after exertion, dizziness, fainting or weak spells, may be placed in two groups, functional and organic heart disease.

The functional cases, which are by far the more common, may be divided into five groups. (1) Constitutionally Inferior. (2) Emotionally Sensitive. (3) Neurotics. (4) Neurological Basis. (5) Physical Strain, and I think we could add the Tachycardia of Hyperthyroidism to these groups.

1. The constitutionally inferior complain of faintness, dizziness, shortness of breath and palpitation. The majority of them are young adults or adolescents. They are rather sickly looking with thin undernourished bodies, blue cold hands, rapid pounding hearts with a systolic thrill at the apex and with sweat running down from the axillae. They say they have been nervous and tired since childhood, or they have been told they have heart disease. They never hunted or fished or played football or hockey and they never knocked a home run. They left school at an early age and a low grade. Their first job was too hard. They kept getting easier ones. They are bell boys, or timekeepers, or chauffeurs, or they run elevators. Their family history is poor. Parents died young, or are not very well. On physical examination we may find a systolic murmur at the apex. It varies with the phase of respiration. There is no enlargement of the heart and there is no history of rheumatic fever. The heart rate will slow up on stooping. There may be an impure first sound at the apex suggestive of a presystolic murmur, but it will clear up on inhaling a pearl of amyl nitrite.

2. The emotionally sensitive are healthier looking. Their past history is better, but they are easily upset and they break down under severe mental strain. They complain of shortness of breath and weak spells. In the Army they became the cases of shell shock. Their physical findings are about the same as the con-

stitutionally inferior. They improve under a change of surroundings and rest.

3. The neurotics complain of faintness. They vomit without cause, have hysterical attacks. They have long barrel-shaped chests. These cases are often taken for hyperthyroidism. They have the four cardinal symptoms—tachycardia, tremors, loss of weight, and struma. The only proof is the indefinite history of onset and basal metabolism; though these cases have no pep and the goiter cases are full of energy. The physical findings in the heart are negative.

4. Those with a neurological base have a history of epilepsy, basal meningitis, encephalitis, or damage to the nervous system during infection.

5. Physical strain. After an illness one is weak. The skeletal muscles tire easily. One gets short of breath doing what he used to do without knowing he had a heart. In health the skeletal muscles will give out before the heart does.

Hyperthyroidism might be spoken of here, as in its early stage the heart change is a functional one, though later in life there is a myocardial change and the patient comes under the group of organic hearts, or goiter heart which is a branch of the sclerotic hearts.

Patients with organic heart disease may be divided into two groups, the infectious and the degenerative or sclerotic.

They may also be divided into two groups, the active and the inactive. That is those where the damage is being done and those where the heart structure has been damaged at some previous time. These should really be called affected hearts rather than infected. We have had the infection, now we have the affection. The scar tissue is what is interfering with the work of the heart, and we are called upon to treat the patient for heart failure rather than for heart disease.

It is easier to handle our heart cases if, as Dr. White suggests, we study them from three standpoints,—etiology, structural change and functional condition. If we group them as I have suggested, we have considered the etiology and it is wonderful how that clears up a case. Has the patient any reason for having heart disease? If he has a reason, if he has had rheumatic fever, has it produced any structural change? If it has affected the endocardium there will a change in the heart sounds. There will be a murmur. If there is a diastolic murmur heard at the left border of the sternum, or at the base, or at the apex, even though the murmur is heard only at the end of a forced expiration he has an aortic insufficiency and the prognosis is not good. If he has a presystolic murmur and a failure of the congested type or auricular fibrillation, he has mitral stenosis and the prognosis is poor. If he has a systolic murmur at the apex and an enlarged heart and a history of infection, he has mitral insufficiency and the prognosis may not be very bad, as these cases respond to rest and digitalis. If he will limit his activities and not use up his cardiac reserve, he can live much longer than the patient with mitral stenosis or aortic regurgitation. We have to remember in giving our prognosis that our diagnosis of mitral disease is not always confirmed by autopsy.

Pericarditis is common, if watched for. It is found most often by the medical student and the interne and the pathologist. It is easy to overlook as the friction rub may be present for only a short time, perhaps an hour or two, and the effusion may be very slight, not enough to cause mechanical embarrassment. Perhaps it is just as well for the patient that pericarditis is not discovered oftener, because when there is fluid, there is a temptation to aspirate, and generally the effusion will take care of itself. Pericarditis may occur in the course of rheumatic fever, generally following endocarditis, as shown by friction rub, or indistinct heart sounds, or increase in cardiac dullness, or it may occur as a terminal thing, as shown by the pathologist.

There may be structural change in the myocardium, chronic myocarditis, as shown by weak or impure sounds, by limited field of activity, or by failure of the anginal or congestive type, or by irregularities.

It is always quite worth our time to look for the cause of precordial pain, especially if it follows exercise. We should note the character and distribution of the pain, and the action of the patient during the pain, and the effect of nitroglycerine. It is common to have pain in the left chest due to muscular strain or infected teeth. These are more apt to occur in young adults. After middle life it is safer to get an electrocardiogram of any patient who complains of pain around the heart, and it is safer to give a guarded prognosis.

The irregularities are divided by Lewis into seven classes,—sinus arrhythmia, heart block partial or complete, premature beats, paroxysmal tachycardia, auricular flutter, auricular fibrillation and pulsus alternans.

In sinus arrhythmia the impulse arises in the s-a-node at irregular intervals. The auricular and ventricular complexes are normal but the rate is irregular. It is of no clinical significance. At times it is impossible to diagnose sinus arrhythmia without the electrocardiogram.

In heart block there is a defective conduction of the impulse from the auricle to the ventricle. It may be a delayed conduction or it may be cut off entirely. The three common causes of heart block are sclerosis, inflammation, and digitalis. The electrocardiogram is a great help in differentiating heart block from premature beats, and from bradycardia and from a slow auricular fibrillation.

In paroxysmal tachycardia the impulse arises in the annular wall node at an abnormally high rate. The attacks begin and end abruptly. The main point in diagnosing paroxysmal tachycardia is that the rate does not change from minute to minute or with exertion or change of

position. As Dr. Levine has shown, the rate should not vary more than two beats per minute. That allows for the error in counting. There is no treatment except pressure on the vagus. The patient may stop the attack himself by holding the breath, stooping or vomiting.

Auricular flutter is a condition in which the auricle beats regularly at a very rapid rate, from 200 to 321 a minute. It is practically impossible to detect flutter without the electrocardiogram. We may suspect it when a patient with a moderately rapid pulse has symptoms that are too severe for our clinical findings. If we give digitalis in large doses till we get a slower rate and fibrillation, and then withdraw it and get a normal rhythm we may be quite sure that we had flutter.

In auricular fibrillation some part of the auricle is constantly contracting, but the movement as a whole is more or less incoördinate. The pulse is totally irregular. If the rate is over 100 there are some beats that do not go through to the radial and we have a pulse deficit. If the rate is increased by exercise or fever the irregularity decreases with increase of rate. The prognosis depends on the rate at which we are able to hold the heart with digitalis, and on the effect of quinidine. A patient with fibrillation of the congestive type should be given rest in bed with digitalis in full doses. If the fibrillation persists after he is digitalized, as shown by the change in the shape of the T wave or as shown by the clinical improvement, or the coupled beat or the vomiting, he may be given quinidine.

Apparently we have in quinidine a very valuable remedy for auricular fibrillation. Our experience at the City Hospital has been about the same as reported by others. We help about half of the cases—some of them for only a day or two, some for a much longer period. We are inclined to think that quinidine is indicated and gives the best results in cases of short duration, where the irregularity is a cause of discomfort, either from heart failure or from its mental effect. The patient should be kept in bed and watched very carefully. It is better to have the patient in the hospital where the effect of the quinidine can be checked up with the electrocardiogram.

Nurses should be given a stethoscope. It is impossible to get the heart rate of a fibrillation by the radial pulse.

Patients with cardio-vascular syphilis come to us when they are in the late forties or early fifties. They complain of precordial pain and shortness of breath. Dr. Levine has found that syphilis attacks the aorta rather than the myocardium. They have a diastolic and perhaps a to and fro murmur at the base. The Wassermann is not always positive. They should have a 7-foot plate. Syphilitic heart disease differs from rheumatic in that the disease is progressive. The active process is going steadily on. Our only hope is to be able to stop it. We cannot restore the damaged tissue. I think that it is considered better treatment to give the iodides and mercury before giving small doses of 606. We can always give an unfavorable prognosis.

As to the treatment of heart failure—one may have heart disease for years and not know it unless he has been told about it, and when a heart is unable to sustain one at the level at which he is accustomed to live, he has heart failure with shortness of breath, edema, cyanosis and orthopnoea, or he has precordial pain.

If the failure is of the congestive type we prescribe rest and digitalis, and a limited field of activity.

Digitalis is not given because there is a murmur, but because the heart is not able to do its work without help. There is one murmur that is an indication for digitalis and that is the systolic murmur of a relative mitral insufficiency. As the patient becomes digitalized the heart becomes smaller and the murmur disappears.

If digitalis is indicated, it should be given in sufficiently large doses to get its full therapeutic effect. It is better to use a preparation with which you are familiar, and which has given you results before. Then if you do not relieve your patient it is because you are not giving a large enough dose. Now and then you will find a patient in whom you get your toxic effect before you get your therapeutic effect. In these cases you have to depend on rest.

Heart disease should be prevented rather than treated. If we can prevent rheumatic fever by removing the foci of infection, or if we treat rheumatic fever with full doses of salicylates, and long convalescence, we will lessen the number of rheumatic hearts.

Important points in appraising a heart case are: (1) etiology, personal history, rheumatic, luetic or sclerotic. (2) structural damage done, valve lesions, size of heart, etc. (3) Functional state, amount of work that causes discomfort.

THE COURSE OF HUMAN DESTINY.

The Yale University Press is sending a circular through the mail setting forth the opinions held by Ellsworth Huntington, Research Professor of Geography in Yale University. He endorses the attitude of astrologers of old, who told the people that stars control human destiny. Dr. Huntington's assertions are founded on his explorations in Western Asia, supported by subsequent investigations in Mexico and Central America. From these observations he asserts that there is a definitely established fact of relationship between climate and human progress.

He will bring out in a book, entitled "Climate Changes: Their Nature and Causes," the theory that our climate is controlled by the sun spots, which are the result of conjunction of the planets and the approach of stars.

Charts have been made of the positions of the stars over a period of 140,000 years, 70,000 years in the past and 70,000 years in the future. Past history, it is claimed, shows that

events of the past correspond with certain positions of the heavenly bodies, and since astronomy can plot the relation of these bodies in the future, coming events can be foretold. This is interesting, if true.

BOARD OF HEALTH OF PORTLAND, ME.

The annual report of the Board has come to hand and shows that the death rate for this city is 14.39. Tuberculosis (all forms) shows a death rate of 71.8 per 100,000 population, cancer shows 147.7, organic disease of the heart 155, pneumonia and bronchitis 122.8, nephritis 123.8; deaths of infants under one year had a rate of 58 per 1,000 live births. This Board has taken measures to study the possibility of the introduction of plague by infected rats and has presented in this report cogent reasons for the adoption of preventive measures on our sea coast. Although 2,010 rodents taken in Portland were killed and examined at a cost of $1,950.18, no plague infected animals were found, but the prediction is made that the Atlantic sea coast will not long enjoy the present freedom from plague.

The report shows that the common problems of preventive medicine are being efficiently dealt with in this city.

WEEKLY HEALTH INDEX.

The Department of Commerce at Washington reports that telegraphic returns from 63 cities, with a population of 27,000,000, for the week ending September 9, indicate a mortality rate of 10.4 as against 10.7 for the corresponding month last year.

The highest rate (18.8) appears for Birmingham, Ala., and the lowest (4.5) for Springfield, Mass. The highest infant mortality rate (15.4) is for Fall River, Mass., and the lowest for Salt Lake City, which reported no mortality.

The mortality rates for June, July and August, of this year, are lower than for the same period of last year.

VISITS OF JAPANESE MEDICAL LEADERS TO AMERICA.

Some of the most eminent physicians and surgeons of Japan will visit the United States and Canada, probably next spring, in response to an invitation from Dr. George E. Vincent, president of the Rockefeller Foundation, which has been accepted by the Minister of Education. According to the invitation from Dr. Vincent, the Japanese mission is to be composed of four or five of the medical leaders, and about three months will be spent in visiting the principal hospitals, universities, medical schools and other scientific centers there, during which time they are to be under the guidance of some leading medical men in the United States. As the guests of the Rockefeller Foundation, all the expenses will be met by the foundation. The selection of the mission is entrusted at the request of the Minister of Education to the Japanese Committee for the Furtherance of Graduate Medical Study in the United States, the chairman of which is Baron Sakatani and which comprises eight or nine of the leading physicians and surgeons of the empire. The invitation will be only one result of a movement now under way to bring the medical, surgical and scientific professions of America and Japan closer together. The same result is also being sought by means of scholarships awarded Japanese doctors for graduate study in American universities. Three Japanese students are already in the United States on such scholarship, two given by the Rockefeller Foundation and one by the Mayo Foundation.—*The Japan Medical World.*

THE PREVENTION OF PERITONEAL ADHESIONS.

Takashi Kubota, working in the Department of Surgery, Medical College of Kyushu Imperial University, Japan, claims to have demonstrated the value of papain in preventing peritoneal adhesions. He first produced peritoneal adhesions by irritating certain parts of the peritoneum and then used control animals subjected to the same treatment but applying solutions of papain to the irritated areas. His conclusions are as follows:

1. The local application of one hundred to two hundred thousand times dilutions of Koktol in physiological salt solution satisfactorily prevented the peritoneal adhesions in animal experiments.

2. Koktol has no toxic action with the doses I used.

3. Koktol in powder form is not deteriorated at dry heat of 100 c. for sterilization.

4. Applications of Koktol solution at the points of anastomosis of the gastro-intestinal tract do not prevent from adhesion and healing of the wounds. However, the abnormal adhesions around the wounds were prevented by the applications. (Koktol is papain.)

BELGIUM AND THE VENEREAL MENACE.

The National Council for Combating Venereal Diseases, London, states that during the war and the German occupation of Belgium, venereal disease spread in an alarming manner. The Government Board of Health has now worked out a new programme, with the coöperation of existing health organizations. The principal

measures consist in the free distribution of salvarsan and other drugs, the reinforcement of the sanitary staff and in the choice of specialists recognized by the Government to attend medical clinics and dispensaries.

Since coercion has not been deemed advisable in Belgium, a National League for Combating Venereal Disease has been formed, and is working with the help of these committees: medical, moral propaganda, and social assistance committees. The activities of these committees are outlined as follows:

(*a*) MEDICAL WORK.—Consists principally in treatment. It has been partly helped by the Government.

The League will have to build as many model dispensaries as possible, and invite all medical men to send their patients there for treatment.

The League will have to complete the training of the doctors themselves concerning the treatment of venereal disease; it will have a member on the University Board, so that the teaching of these diseases will have the place that it requires in the programme of the courses, and be made compulsory; it will organize special courses for young doctors; it will see that new legislative measures will be taken without delay against quack treatment and false advertisements in the papers.

(*b*) MORAL PROPAGANDA.—This commission will spread the knowledge of venereal diseases through the whole country and indicate the best means to prevent them, and to cure them.

This will be done by means of lectures, press articles, tracts, pamphlets, posters, etc.

Lectures will be organized all over the country.

They will be given in a series of three, as we consider that one single lecture does not make a deep enough impression.

One will be on syphilis, one on gonorrhoea, and one on either moral culture or social help, or combining both subjects.

These lectures will vary according to the audience; to the general public, to medical students, to young men at universities, to boys before they leave college, to teachers, to soldiers and officers, to workmen, to women, and to parents.

Each member of the audience will be asked for his name and address, so that pamphlets and tracts may be sent to him later on, which will keep his interest awake on the subject.

The lecturers will be either voluntary or paid by the League.

(*c*) SOCIAL WORK.—This commission will help the victims of venereal diseases, especially women and children.

Homes, hostels, and maternity hospitals will be started as soon as possible for patients suffering from this disorder, crèches and "pouponnières" for heredo-syphilitic children.

CHILDREN PAY THE PENALTY.

IT is most unfortunate that the children, who have nothing to say as to what means shall be used for their protection against the preventable diseases, are, as a rule, the ones who pay the penalty for the misguided actions of those who are responsible for their proper care and protection.

And especially is this true in the case of the children of parents and guardians who are opposed to vaccination as a means of protection against smallpox. Such children may be well termed the victims of anti-vaccination propaganda.

For many years the history of outbreaks of smallpox has shown that those of the most serious character have always occurred in communities where anti-vaccination propaganda has been most effective.

For example, Dr. W. M. Dickie, Secretary of the California State Department of Health, tells us that there was a marked increase in the concentration of smallpox upon the age groups which have the highest proportion of unprotected persons. In support of this he presents some statistics bearing upon this phase of smallpox incidence in that state and covering the years from 1916 to 1921. These figures show that in 1916, 36.6 per cent. of the cases of smallpox occurring in that year were of persons below fifteen years of age. In 1921 this proportion had increased to 45.8 per cent. And then he adds that, as the number of unprotected children of school age increases through the opposition and influence of anti-vaccinationists to compulsory vaccination as a condition to school attendance, the number of smallpox cases among the young also increases.

The following figures, prepared by Dr. Dickie, tell their own story and also fully support the contention that smallpox incidence is always highest among those unprotected by vaccination:

*Year	Total No. of Cases	Cases in Persons from 5 to 14 Years of Age
1916	205	50
1918	654	191
1919	1,560	531
1920	4,218	1,471
1921	5,278	2,126

*Data for 1917 not obtainable.

It is also of interest to note that in 1920, 341 of these cases were in children under five years of age, and in 1921, 392 cases under five.

After a study of the above carefully compiled and authentic figures and the statements in connection therewith, would it not be a wise thing to have your children properly vaccinated and thus protect them against this loathsome disease? —[Chicago School of Sanitary Instruction Bulletin.]

THE LIMITED SELECTIVE EMBARGO ON SYNTHETIC ORGANIC CHEMICALS AND MEDICINALS.

An appeal has been sent to physicians of America to use all proper influence with Congress to secure the continuance of the dye and chemical content act in order to give sufficient time for a thorough study of rates of duty required to protect American industry along these lines.

If any physician is uncertain about the best course to pursue, he will be aided in his consideration of the subject by reference to the editorial which appeared in the *Journal of the American Medical Association*, August 12, 1922.

Obituaries.

NATHANIEL R. PERKINS, M.D.

Dr. Nathaniel Royal Perkins, assistant secretary of the Massachusetts Board of Registration in Medicine, dropped dead in front of his home in Dorchester, September 22, 1922.

He was born in Plainville, Vt., Sept. 10, 1847, attended the Newbery Seminary and later the Hahnemann Medical College in Philadelphia, graduating from the Boston University School of Medicine in 1876. He settled in practice in Winchendon, moving to Dorchester in 1890, where he had practised until the time of his death. He became a member of the Board of Registration in Medicine in 1902 and had served continuously since. In 1888 he was a member of the legislature, representing the town of Winchendon. He was a Mason and a member of the Massachusetts Homeopathic Medical Society since 1880.

He is survived by his widow, one daughter, and a son, Dr. R. L. Perkins, of Harrisburg, Pa.

He was always deeply interested in the affairs of that society having served as President, and on important committees. He delivered the oration at the last annual meeting as a member of the Board of Registration in Medicine. He was interested in all matters which might be of assistance to reputable practitioners. With these objects in view he was an ardent advocate of reciprocal relations between the States. Since acting as assistant secretary he was ambitious to develop the employment of practical methods.

PHYSICIAN MURDERED WHILE GIVING FIRST AID.

Dr. Henry Vose Reynolds of Brookline was shot and killed by a negro janitor in front of 1768 Beacon Street, Brookline, while giving first aid to victims of previous charges of the janitor's double barrelled shotgun, on the evening of September 21, 1922.

Dr. Reynolds happened to be passing the spot in his automobile when the janitor of the apartment building, who had been recently discharged and had been drinking, opened fire from the basement door on his employer and a policeman without warning. Seeing the two wounded men fall to the sidewalk, Dr. Reynolds sprang from his car and ran to their assistance, calling to the janitor not to fire again. The next shot killed Dr. Reynolds instantly, while bending over one of the men, the entire charge lodging in his neck and shoulder.

Dr. Reynolds was born in Canton sixty-one years ago, and took his M.D. at Boston University School of Medicine in 1885. After taking post-graduate courses at Harvard Medical School and in Vienna, he settled in practice in his native town, then moved to Dorchester and joined the Massachusetts Medical Society in 1889. He moved to Brookline in 1916 and had practised there since. He was examiner of the State Mutual Life Insurance Company and was active in Masonic affairs. He is survived by his widow and one married daughter.

NOTICES.

THE MASSACHUSETTS MEDICAL SOCIETY.

STATED MEETING OF THE COUNCIL.

A stated meeting of the Council will be held in John Ware Hall, Boston Medical Library, 8 The Fenway, on Wednesday, October 4, 1922, at 12 o'clock noon.

Business:

1. Report of Committee on Membership and Finance, as to Membership.
2. Petitions for restoration to the privileges of fellowship and reports of committees to consider such petitions.
3. Appointment of Auditing Committee.
4. Appointment of delegates to annual meeting of Vermont State Medical Society at Burlington, October 12 and 13, 1922.
5. Report of Committee on Membership and Finance, as to Finance.
6. Report of Committee to draft petition to the General Court for authority to hold a larger income.
7. Report of Committee on meetings of New England Medical Societies.
8. Report of the delegation to the meeting of the House of Delegates of the American Medical Association at St. Louis.
9. Report of the Committee on Public Health on definitions of the terms: "public health nurse" and "functions of the public health nurse."
10. Appointment of assistants to the Committee of Arrangements for the Annual Meeting in Pittsfield, June 12 and 13, 1923.
11. *Incidental Business.*

Walter L. Burrage,
Secretary.

Boston, September 27, 1922.

Councilors are reminded to sign one of the attendance books before the meeting. The Cotting Lunch will be served in the Supper Room immediately after the meeting.

SUFFOLK DISTRICT MEDICAL SOCIETY.

MEETINGS FOR 1922-1923.

October 18, 1922. Stated Meeting.

"Caesarean Section." Dr. John O. Polak, of Brook-

lyn, New York, Professor of Obstetrics and Gynecology, Long Island College Hospital. Discussion to be opened by Dr. F. S. Newell and Dr. R. L. DeNormandie. Lantern slides.

NOVEMBER 22, 1922. Combined Meeting of the Boston Medical Library and the Suffolk District Medical Society.

"Rehabilitation." "The Pay Envelope instead of the Park Bench." Introduction of the subject and certain preventive Surgical Measures, Dr. Frederic J. Cotton.

Certain Medical and Mental Aspects, Dr. Herbert J. Hall.

The State Institutions, Dr. John H. Nichols.

Certain Legal Aspects, Joseph A. Parks, Esq.

The Industrial Side, Dr. Francis D. Donoghue.

Occupational Therapy, Drs. E. G. Brackett and John D. Adams.

Physiotherapy, Dr. Frank B. Granger.

Discussion opened by Drs. Francis W. Anthony, of Haverhill, and James W. Sever, of Boston.

DECEMBER 27, 1922. "Surgical Lesions Occurring in Diabetics: their Peculiarities and Management." Dr. Elliott P. Joslin, Boston. An account of the experience in this field of the Major Hospitals of Boston, by members of the Staffs.

JANUARY 31, 1923. "Epidemic Encephalitis," Dr. E. W. Taylor, Boston.

FEBRUARY 28, 1923. "Colitis," Dr. Henry F. Hewes, Boston.

MARCH 28, 1923. "A Review of What Surgery Can Accomplish in Diseases of the Thoracic Organs, with a Forecast of the Future," Dr. Howard Lilienthal, New York.

APRIL 25, 1923. Annual Meeting.

"The Record of the past twelve years in Syphilology, with a Forecast of the Future." A series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

Election of officers.

R. H. Miller, Secretary. J. S. Stone, President.

NORFOLK DISTRICT MEDICAL SOCIETY.

EXTRA SPECIAL.

There will be an extra special meeting of The Norfolk District Medical Society at the Roxbury Masonic Temple, 171 Warren St., Tuesday, evening, October 3, at 8.15 P. M. sharp.

The purpose of this meeting is to try to arouse interest in Schick Test and toxine-antitoxine immunization which is now receiving so much attention by the Health Departments of both the City and State.

The programme will cover many phases of the subject and has as speakers men of wide experience and much enthusiasm.

It behooves every member who has the health of the community and his personal interest at heart to attend this meeting.

The speakers are: Dr. Francis X. Mahoney, Commissioner of Health, Boston; Dr. John A. Ceconi, Epidemologist, Boston; Dr. Eugene R. Kelley, Commissioner of Health, State of Massachusetts; Dr. Benjamin White, Director of State Laboratory; Dr. Edwin H. Place, Resident Chief, South Department City Hospital; Dr. William H. Devine, Director of Medical Inspection, Boston Schools.

Open Discussion. Collation.

The Censors meet for the examination of candidates, Thursday, November 2, 1922.

BRADFORD KENT, M.D., Secretary.
798 Blue Hill Avenue, Dorchester.

AMERICAN PUBLIC HEALTH ASSOCIATION TO MEET IN CLEVELAND.

The Fifty-First Annual Meeting of the American Public Health Association will be held at Cleveland, Ohio, October 16-19, 1922. Headquarters will be at Hotel Statler.

The following sections will conduct programs: Public Health Administration, Laboratory, Vital Statistics, Sanitary Engineering, Industrial Hygiene, Food and Drugs, and Child Hygiene. There will also be special programs on Public Health Publicity and Education and Public Health Nursing.

An interesting part of the general sessions of the program will be a summary and conclusions from a survey of eighty-five city health departments, conducted by a committee under the chairmanship of Professor C.-E. A. Winslow. A second feature will be a symposium on the subject, "How Can We Safeguard Public Health from Political Interference?"

Reduced railroad rates have been granted to members of the Association.

Further information may be obtained from the Secretary of the Association at 370 Seventh Avenue, New York City.

Secretaries of societies are requested to forward notices of coming meetings for publication. Reporters will please forward early reports of meetings that have been held with a concise account of the salient features.

UNITED STATES CIVIL SERVICE EXAMINATION.

RESEARCH ASSISTANT IN CHILD HYGIENE.

Receipt of Applications to Close October 10, 1292.

The United States Civil Service Commission announces an open competitive examination for research assistant in child hygiene. Vacancies in the Children's Bureau, Department of Labor, at $1600 to $2000 a year, and in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. For particulars apply to United States Civil Service, Washington, D. C.

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING SEPT. 9, 1922.

Disease.	*No. of Cases.*	*Disease*	*No. of Cases.*
Anterior poliomyelitis	19	Ophthalmia neonatorum	15
Chicken-pox	14	Pneumonia, lobar	20
Diphtheria	104	Scarlet fever	55
Dog-bite requiring anti-rable treatment	4	Syphilis	22
Encephalitis lethargica	1	Suppurative conjunctivitis	7
Epidemic cerebro-spinal meningitis	3	Tetanus	2
German measles	1	Trachoma	2
Gonorrhea	108	Tuberculosis, pulmonary	119
Influenza	5	Tuberculosis, other forms	17
Malaria	1	Typhoid	26
Measles	38	Whooping cough	115
Mumps	12	Hookworm	4

WEEK ENDING SEPTEMBER 16, 1922.

Diseases.	*Cases.*	*Disease.*	*Cases.*
Anterior poliomyelitis	14	Septic sore throat	1
Chicken-pox	14	Syphilis	60
Diphtheria	99	Suppurative conjunctivitis	6
Dog-bite	9	Tetanus	1
Encephalitis lethargica	3	Trachoma	1
Gonorrhea	137	Trichinosis	1
Influenza	1	Tuberculosis, pulmonary	117
Malaria	1	Tuberculosis, other forms	14
Measles	46	Typhoid	23
Ophthalmia neonatorum	14	Whooping cough	158
Pneumonia, lobar	18		
Scarlet fever	58		

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following books for review:

Le Probleme du Cancer. By W. S. Bainbridge. Translated by Dr. Hertoghe. Published by A. Uystpruyst, Louvain, and O. Doin, Paris. 481 pages.

Aids to Bacteriology. By William Partridge. Published by William Wood & Co. 276 pages. Price $1.75.

Manual of Physio-Therapeutics. By Thomas Davey Luke. Published by Wm. Wood & Co. 480 pages. Price $6.

Diseases of the Thyroid Gland. By Arthur E. Hertzler. Published by C. V. Mosby Co. 245 pages. Price $5.

Ten Post-Graduate Lectures. Various Authors. Preface by Rt. Hon. Sir Clifford Albutt. Published by Wm. Wood & Co. 216 pages. Price $3.50.

General Medicine. Weaver, Brown, Preble, Sippy. Practical Medicine Series 1922, Volume 1. Published by Year Book Publishers. 715 pages. Price $3.

Mortality Statistics 1920. Bureau of the Census. 667 pages.

Crime, Its Causes and Treatment. By Clarence Darrow. Published by Thomas Y. Crowell Co. 292 pages. Price $2.50

Kompendium der topischen Gehirn und Rückenmarksdiagnostik. von Robert Bing. Published by Urban & Schwarzenberg, Berlin and Vienna. 242 pages. Price Mk. 540.

Obstetrics for Nurses. By Joseph B. DeLee. Published by W. B. Saunders Co., Philadelphia, Pa. 525 pages. Price $3.

MARRIAGE ANNOUNCEMENT.

The marriage is announced of Dr. Richard H. Miller of 402 Marlboro Street, Boston, to Miss Georgina Mary Jardine of Moncton, N. B.

SOCIETY MEETINGS.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue. The incomplete details and omission of names of many societies is because the information has not been furnished, although the JOURNAL has requested information for publication. Free publication of dates of meetings may accommodate many members of societies. Several physicians have spoken of the importance of having a schedule of meetings published so that arrangements may be made for special meetings on dates which may not conflict.

It may be possible to adopt the custom of the publication of notices of stated meetings in the JOURNAL and if this is generally understood, secretaries of societies could save time and expense. If **general cooperation can be secured this plan can be made permanent.**

DISTRICT SOCIETIES.

Barnstable District:—Hyannis,—November 3, 1922, February 2, 1923, (Annual Meeting)—May 4, 1923.

Bristol North, Bristol South, Barnstable and Plymouth Districts will hold joint meetings sometime this fall.

Bristol South District:—Fall River,—November 2, 1922, May 3, 1923.

Eastern Hampden Medical Association:—Springfield, October 5, 1922.

Essex North District:—Haverhill, (Semi-Annual Meeting)—Jan. 3, 1923. Y. M. C. A. Building, Lawrence, (Annual Meeting)—May 2, 1923.

Essex North, Essex South, Middlesex North and Middlesex South Districts will hold joint meetings October 18. Place undecided.

Hampden Districts:—With Hampshire District in Holyoke, Regular meeting in October.

Norfolk District:—Extra Special Meeting at the Roxbury Masonic Temple, 171 Warren Street, Tuesday Evening, October 3, at 8.15 P. M., sharp, to arouse interest in Schick Test and Toxine-antitoxine immunization. An exceptional list of speakers. Open discussion and collation.

Suffolk District:—Stated Meeting, October 18, 1922. Combined meeting of Boston Medical Library and Suffolk District, November 22, 1922; December 27, 1922; January 31, 1923; February 28, 1923; March 28, 1923; Annual Meeting, April 25, 1923.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex North District:—Meetings Wednesday, October 25, 1922; Wednesday, January 31, 1923.

The four western districts plan to hold a joint meeting early in October.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

NEW ENGLAND TUBERCULOSIS CONFERENCE, Augusta, Maine.—September 28, 29 and 30. Sessions will be held at the State House. Headquarters at the Augusta House.

September 28. Speakers: Dr. Arthur L. Wallace, Dr. Stephen J. Mosher, R. V. Spencer, Miss Elena M. Crouch, Dr. Charles Duncan.

September 29. Speakers: **Dr. E. O. Otis, Dr. R. B. Kerr,** Dr. J. Pinckney, Basil G. Eaves, Dr. E. R. Kelley, Dr. E. D. Merrill.

September 30. Speaker: Dr. J. C. Cobb.

At noon a modern health crusade luncheon will be held at the Augusta Hotel. Speaker will be Harold W. Slocum.

Massachusetts Medico-Legal Society will meet Wednesday, October 4, 1922, at 2 P. M., at the Boston Medical Library. Ernest L. Hunt, Secretary.

October, 1922. Boston Tuberculosis Association. Tuberculosis Institute for Physicians will be held on October 5 and 6 at the Massachusetts General Hospital, Bernice W. Billings, Boston, Executive Secretary.

The New England Society of Psychiatry will hold its next meeting on Ocober 5th, at the Connecticut State Hospital, Middletown, Connecticut. Readers: Dr. Walter Timme and Frankwood E. Williams, New York City.

New England Dermatological Society, Wednesday, October 11, 1922, at 3:30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

The Fifty-First Annual Meeting of the American Public Health Association will be held at Cleveland, Ohio, October 16-19, 1922. Headquarters will be at Hotel Statler.

The American Association of Oral and Plastic Surgeons will hold their annual meeting at the Medical Library, Boston, on October 20th and 21st

Clinical Congress of the American College of Surgeons will be held in Boston, Mass., on October 23-27, 1922, Franklin H. Martin, Chicago, Director-General.

Massachusetts Association of Boards of Health, October 26, 1922, Boston, Mass., W. H. Allen, Mansfield, Mass., Secretary.

New York and New England Association Railway Surgeons 32nd Annual Meeting at New York City, October 28, 1922, Donald Guthrie, Sayre, Pa., Secretary.

November, 1922. Massachusetts Society of Examining Physicians, (Date and place of meeting undecided), Hilbert F. Day, Secretary. National Cancer Week, November 12 to 18.

December, 1922. New England Dermatological Society Meeting, Wednesday, December 13, 1922, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary.

January, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary. Massachusetts Association of Boards of Health, January 25, Annual Meeting, Boston, W. H. Allen, Mansfield, Mass., Secretary.

February, 1923. New England Dermatological Society Meeting, February 14, 1923, at 3.30 P. M., in the Skin Out-Patient Department, Massachusetts General Hospital, C. Guy Lane, Secretary.

March, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided), Hilbert F. Day, Secretary.

April, 1923. New England Dermatological Society Meeting, April 11, 1923, at 3.30 P. M., in the Surgical Amphitheatre, Boston City Hospital, C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston, W. H. Allen, Mansfield, Mass., Secretary.

May, 1923. Massachusetts Society of Examining Physicians, (Date and place undecided). American Pediatric Society Meeting, May **31, June 1, and 2, 1923, at French Lick Springs Hotel, French** Lick, Ind., H. C. Carpenter, Secretary.

June, 1923. American Medical Association, San Francisco, June 25-29, 1923, Alexander R. Craig,* Chicago, Ill., Secretary.

July, 1923. Massachusetts Association of Boards of Health, July 26, Nantucket, W. H. Allen, Mansfield, Mass., Secretary.

*Deceased Sept. 2, 1922.

SINS OF OMISSION AND COMMISSION.

Sir Robert Jones says that medical sins of omission and surgical sins of commission would both be prevented by a closer affiliation of these great branches of the medical profession.

(Presidential address, Royal Society of Medicine.)